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# Predictors of AIDS preventive behaviour of Canadian first-year post-secondary students

by

Roula Kteily-Hawa

A thesis submitted to the Faculty of Graduate Studies and Research in partial fulfillment of the requirements for the degree of Master of Science

in

Family Life Education

Department of Human Ecology

Edmonton, Alberta

Spring, 1996

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R. Hawa

265 Balliol St.
Apt. #604
Toronto, Ontario
M4S 1C9

January 26, 1996

University of Alberta

Faculty of Graduate Studies and Research

The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research for acceptance, a thesis entitled predictors of AIDS preventive behaviour of Canadian first-year post-secondary students submitted by Roula Kteily-Hawa in partial fulfillment of the requirements for the degree of Master of Science in Family Life Education.

Brenda Munro

Brenda Munro

Maryanne Poirier

Maryanne Poirier

Gretchen C. Hess

Gretchen Hess

23/1/96

ABSTRACT

The theoretic framework that guides this study is the information-motivation-behavioural skills (IMB) model for AIDS risk reduction. The present study used secondary data analysis to examine predictors of AIDS preventive behaviour of Canadian post-secondary students. Results of this study showed that, while necessary, AIDS preventive information was not sufficient for the enactment of AIDS preventive behaviours. Factors such as motivation to perform preventive behaviours, negotiation skills and decision making skills were important in explaining and predicting condom use and the number of sexual partners. The relative importance of predictors in explaining AIDS preventive behaviours by gender were also examined. Results showed that the behaviour of male subjects in the study was significantly influenced by community norms regarding purchasing and carrying condoms. Negotiation skills and decision making skills were equally important for males and females in explaining their AIDS preventive behaviour. The IMB model can be a useful tool for designing, implementing and evaluating AIDS education programs on campus.

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TABLE OF CONTENTS

CHAPTER


I. INTRODUCTION ..... 1

II. CONCEPTUAL FRAMEWORK AND STUDY OBJECTIVES ..... 4
Conceptual Framework ..... 4
Hypotheses and Objectives ..... 10

III. REVIEW OF THE LITERATURE ..... 11
Knowledge about HIV/AIDS ..... 11
Motivation ..... 16
Attitudes ..... 17
Subjective Norms ..... 21
Intentions ..... 24
Behavioural Skills ..... 26
Behaviour ..... 28

IV. METHODS OF THE STUDY ..... 31
Study Sample ..... 31
Data Collection ..... 32
Sampling Bias ..... 33
Instrument ..... 33
Measures ..... 35
Outcome Variables ..... 35
Predictor Variables ..... 36
Mediating Variable ..... 37
Control Variables ..... 38
Data Analysis ..... 41
Limitations of this Study ..... 41

V. RESULTS ..... 52
Tests of Hypotheses and Objectives ..... 52
Summary of Results ..... 60

VI. DISCUSSION AND CONCLUSIONS ..... 65
Interpretation of the Findings ..... 65
Findings Related to the IMB Model ..... 65
Differences in Relative Importance of Predictors and AIDS Preventive Behaviours for All Subjects and by Gender ..... 67
Study Conclusions ..... 73
Practical Implications and Suggestions for Future Research ..... 78

BIBLIOGRAPHY ..... 84
APPENDICES ..... 94

LIST OF TABLES

Table


4.1 Post-Secondary Sample (number of institutions).....43
4.2 Distribution of Subjects by Gender.....43
4.3 Distribution of Subjects by Age.....43
4.4 Distribution of Subjects by Grade Average.....44
4.5 Distribution of Subjects by Frequency of Church Attendance.....44
4.6 Distribution of Subjects by Living Arrangement.....45
4.7 Distribution of Subjects by Mother's Highest Education.....45
4.8 Distribution of Subjects by Father's Highest Education.....46
4.9 Number of College/University Respondents in Each Program.....46
4.10 Item Content and Response Categories for Dependent Variables.....47
4.11 Distribution of Subjects by Condom Use.....47
4.12 Distribution of Subjects by Number of Sexual Partners.....48
4.13 Measures of AIDS Preventive Information.....49
4.14 Measures of Motivation.....50
4.15 Behavioural Skills Scale.....50
4.16 Measures of Internal Consistency of Scales.....51
4.17 Variables and Scales Used in this Study.....51
5.1 Means and Standard Deviations for Variables and Indices Used.....62
5.2 Results of the Regression Analyses for Behavioural skills (Bskills) for All Subjects.....62
5.3 Results of the Regression Analysis for frequency of condom use (Q22BB) for All Subjects.....63
5.4 Results of the Regression Analyses for Number of Sexual Partners (Q19) for All Subjects.....63
5.5 Results of the Regression Analyses on Use of Condoms (Q22BB) for Males.....63

5.6 Results of the Regression Analyses on Use of Condoms (Q22BB) for Females.....64
5.7 Results of the Regression Analysis on Number of Sexual Partners (Q19) for Males.....64
5.8 Results of the Regression Analyses on Number of Sexual Partners (Q19) for Females.....64

LIST OF FIGURES

Figures

1. The Information-Motivation-Behavioral Skills (IMB) Model for AIDS Risk Reduction .....6
2. The IMB Model as Operationalized in This Study.....40
3. Examination of the Model with Standardized Values (no. of sexual partners as dependent variable).....58
4. Examination of the Model with Standardized Values (frequency of condom use as dependent variable).....59

LIST OF APPENDICES

Appendices

A. Factor Loadings for Items Comprising Components of the IMB Model.....95

B. Correlation Coefficients.....97

C. Canada Youth and AIDS Survey 1988 College University Questionnaire.....99

# CHAPTER I

## INTRODUCTION

The number of cases of Acquired Immunodeficiency Syndrome (AIDS) has risen dramatically in the past decade since the disease was first identified. By September, 1995, 12,119 cases had been reported in Canada with 71.1% case fatality rate (Federal Center for AIDS [FCA], 1995). As the incidence of AIDS increases, people who engage in higher-risk sexual behaviour (unprotected anal and vaginal intercourse) or in sharing of hypodermic needles risk being infected by the Human Immunodeficiency Virus (HIV) which causes AIDS.

As of September, 1995, 38 cases of AIDS had been reported in Canadian adolescents 15 to 19 years of age. As well, 2,146 (17.7% of total AIDS cases) people in Canada aged 20 to 29 had been diagnosed with the disease (FCA, 1995). Due to the varying length of time between HIV infection and appearance of the signs of AIDS, many of this latter group were probably infected during adolescence.

The Canada Youth and AIDS Study (King, Beazley, Warren, Hankins, Robertson, & Radford, 1988) indicated that by age 17 more than one-half of Canadian young people had experienced sexual intercourse at least once. Of those who had sexual intercourse often, only one-quarter protected themselves at least most of the time by using condoms. A subsequent national survey by Health and Welfare Canada (1990) reported fewer than half of sexually active 15 to 17 year olds regularly used condoms during sexual intercourse. Similarly, a trend analysis involving young adult Canadians between 1981-1988 found that even though there was an increase in the possibility of some condom use among the subjects, only 18% used condoms "frequently" or "always" (Maticka-Tyndale, 1991).

It has been well documented that college students are sexually active and engage in sexual activity with many partners during their young adult lives (Maticka-Tyndale, 1991; Tashakkori & Cleaveland, 1990). Because of their single status and life style, college students will be at special risk if the disease becomes more widespread in the heterosexual population. Yet, most students are unrealistically optimistic about their AIDS risk (Mickler, 1993). They tend to feel that they themselves are unlikely ever to contract AIDS, and, consequently, they tend to ignore health practices that are associated with AIDS prevention. This leads us to the question as to what would be some of the effective methods to promote AIDS risk-preventive behaviours among young adults.

While educational efforts have been made to inform sexually active individuals about AIDS and HIV infection, recent research investigating sexual behaviour of college students has not shown evidence that there is consistent practice of safer sexual behaviours (Mickler, 1993; Romer & Hornik, 1992; Vicenzi & Thiel, 1992). Most of the AIDS education programs have been successful at increasing the knowledge level of young adults with minimal or no effects on behaviour. Most of these researchers and other researchers as well (Baldwin, Whitely, & Baldwin, 1990; Carroll, 1991) agree that even though basic HIV/AIDS knowledge is necessary, it is not sufficient for facilitating AIDS preventive behaviour. There is a need to look into other psychosocial factors that will facilitate the enactment of AIDS preventive behaviours.

While there is no model of AIDS education that is widely accepted in the literature, there is evidence to suggest that a number of psychosocial variables including knowledge about HIV/AIDS, motivation to modify AIDS risk behaviours, and AIDS preventive behavioural skills are significant predictors of

young adults' AIDS preventive behaviours. A vast number of studies in the literature examined young people's knowledge regarding HIV/AIDS transmission and prevention (Bustamante, 1992; Goodwin & Roscoe, 1988; Vicenzi & Thiel, 1992), motivation to change HIV/AIDS risk behaviours (DiClemente & Fisher, 1991; Fisher & Misovich, 1990; Yep, 1993), AIDS preventive behavioural skills (Gray & Saracino, 1991; Stebleton & Rothenberger, 1993), and AIDS preventive behaviours (Maticka-Tyndale, 1991; Oswalt & Matsen, 1992). However, most of these studies were descriptive in nature and very few of them actually looked at the predictors of behaviour in one theoretical framework.

The theoretic framework that guides this study is the information-motivation-behavioural skills (IMB) model for AIDS risk reduction (J.D. Fisher & W.A. Fisher, 1992). This model postulates that AIDS risk reduction behavioural change is a function of the interaction of three components of behaviour: knowledge regarding the means of AIDS transmission and AIDS prevention; motivation to change HIV/AIDS risk behaviour; and behavioural skills needed to initiate HIV/AIDS preventive behaviours. The present study will examine the knowledge, motivation and behavioural skills components as predictors of AIDS preventive behaviours.

The primary purpose of this study is to predict and explain AIDS preventive behaviours of Canadian first-year university and college students. As part of this study, each of the components of the IMB model used in the study will be evaluated for their relative importance by gender. Identification of components in this model which are of significance in explaining and predicting young adults' AIDS preventive behaviours will ultimately affect AIDS risk reduction and will be useful in the development of AIDS prevention programs.

# CHAPTER II

## CONCEPTUAL FRAMEWORK AND STUDY OBJECTIVES

### Conceptual Framework

A number of models or frameworks have been developed in an effort to understand, explain, and predict health-related behaviours. The information-motivation-behavioural skills (IMB) model for AIDS risk reduction (Fisher & Fisher, 1992) will be used to guide this study because its focus on knowledge, motivation and behavioural skills best accommodates the purpose of the study. As well, the IMB model provides structure and organization for planning and evaluating AIDS education interventions (Fisher & Fisher, 1992; J.D. Fisher, W.A. Fisher, Williams, & Malloy, 1991).

The IMB model is a social psychological model which was developed to both predict and explain AIDS-preventive behaviour. There are three components in the model, the interaction of which result in changes in AIDS risk behaviour (see Figure 1). Information regarding AIDS transmission and prevention is the foundation for changes in HIV/AIDS risk behaviour. Motivation to change HIV/AIDS risk behaviour, which is the second component of the model, is defined as the drive to perform certain acts that are consistent with prevention. Behavioural skills for performing specific AIDS-preventive acts represent the third component of the model and involve the acquisition of the necessary skills to perform AIDS preventive behaviours (Fisher & Fisher, 1992; Fisher et al., 1991; W.A. Fisher & J.D. Fisher, 1993).

According to the IMB model, HIV/AIDS information and motivation affect AIDS preventive behaviour indirectly by acting through the behavioural skills component . Both information and motivation affect AIDS preventive behavioural

skills which in turn affect behaviour (Fisher & Fisher, 1992; Fisher et al., 1991; Fisher & Fisher, 1993). As well, information and motivation may influence AIDS preventive behaviour directly in situations where AIDS-specific behavioural skills are not needed to change AIDS risk behaviours (Fisher et al., 1991; Fisher & Fisher, 1993). The behavioural skills component of the IMB model has mostly a direct effect on AIDS preventive behaviour irrespective of the presence of adequate HIV/AIDS information or motivation to perform AIDS preventive behaviours (Fisher et al., 1991). A description of the information, motivation, and behavioural skills components of the IMB model will be provided.

Evidence of the relationship between AIDS information and AIDS preventive behaviour is inconclusive. Knowledge or information regarding HIV/AIDS transmission and prevention is mostly considered as a prerequisite of AIDS preventive behaviour but often not sufficient for behaviour change (Baldwin et al., 1990; DiClemente, 1989; Fisher & Misovich, 1990; Fisher & Fisher, 1992). According to the IMB model, in order for acquired information to have an effect on AIDS preventive behaviours, its content should be specific to the population under study and reflect specific AIDS preventive acts (Fisher et al., 1991; Fisher & Fisher, 1993). For example, for gay men, specific items in the knowledge questions which are relevant to prevention may be different from the information relevant for heterosexual men.

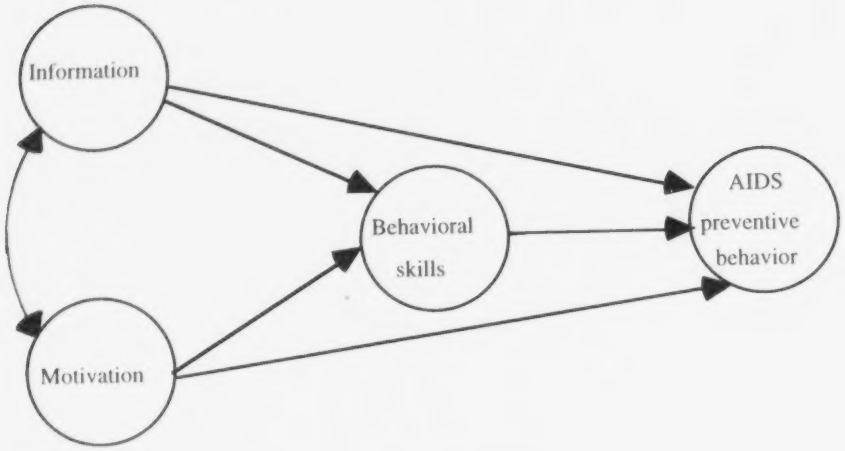


Fig. 1 The Information-Motivation-Behavioural Skills (IMB) Model for AIDS Risk Reduction (W.A. Fisher & J.D. Fisher, 1992)

Based on Fishbein and Ajzen's theory of reasoned action (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975), the motivational construct of the IMB model is conceptualized as a function of two other determinants: attitude toward AIDS-preventive behaviours and subjective norms. According to the TRA, attitudes are a function of the individual's health beliefs that a certain behaviour will lead to a specific outcome. Subjective norms are a function of the individual's beliefs that specific social referents think he/she should or should not perform the behaviour as well as his/her motivation to comply with those referents (Fishbein & Ajzen, 1980). In accordance with the assumptions of the TRA, the IMB model proposes that any other factor which might have an influence on the motivational construct (e.g. perceived vulnerability to HIV infection, perceived severity of HIV, perceived costs and benefits of AIDS prevention) usually works through the attitude and subjective norm components of the model (Fishbein & Ajzen, 1975; Fisher & Fisher, 1992).

AIDS preventive information and motivation activate behavioural skills which, in turn, will initiate the enactment of AIDS preventive behaviours. AIDS preventive behavioural skills involve verbal and non verbal abilities such as communication with potential sexual partners in regards to sexual history and condom use; negotiation skills during sexual encounters; and public behaviours such as purchasing condoms and carrying them (Fisher & Fisher, 1992). According to the IMB model and in accordance with the social cognitive theory, young adults who have AIDS preventive skills are more likely to have a sense of self efficacy and belief in their ability to enact safer sexual practices and other AIDS preventive behaviours (Bandura, 1992; Fisher & Fisher, 1992).

According to Fisher and Fisher, motivation and information are conceptually independent constructs that do

not necessarily exhibit a strong relationship. For instance, individuals who are adequately informed about AIDS transmission and prevention may have positive attitudes towards the use of condoms as well as social norms which are supportive of AIDS preventive behaviours. On the other hand, highly knowledgeable individuals may have negative attitudes towards the use of condoms (e.g. believe that condoms cause embarrassment or reduction in sexual pleasure, etc.) and little support from their social group (e.g. being thought of as promiscuous if you carry a condom, etc.). As well, the fact that knowledge alone is not enough to cause behavioural change further supports that other factors such as attitudes and subjective norms are necessary in order to have changes in behaviour (Fisher et al., 1991).

Researchers suggest that certain psychosocial factors need to be included in various AIDS prevention programs. Even though knowledge and motivation are necessary for behaviour change, other factors such as behavioural skills need to be considered in order for the behaviour to be enacted. AIDS preventive behavioural skills are considered good predictors of AIDS preventive behaviours, with individuals listing obstacles to practicing safer sex being less likely to acquire AIDS preventive behaviours (Gray & Saracino, 1991; Oswalt & Matsen, 1991).

The apparent strengths of the IMB model of AIDS risk reduction are many. It is conceptually based and relies on reasonable hypotheses which link the various determinants of AIDS preventive behaviour (Fisher et al., 1991). It embodies many of the constructs of other theories in the literature such as the Health Belief Model (Becker, 1974), the Theory of Reasoned Action, the social-cognitive theory (Bandura, 1986), and the AIDS Risk Reduction Model (Catania, Kegeles, & Coates, 1990). As well, the IMB model expands the work of these researchers and captures most of the flaws in these

models. Some of these models have never been tested (e.g. the AIDS Risk Reduction Model), or have not been tested as a multivariate model (e.g. social-cognitive theory), or have been tested with mixed results supporting their validity (e.g. Health Belief Model). As the IMB model builds on these weaknesses, it becomes unique in its comprehensiveness, specificity, and rigor (Fisher & Fisher, 1992).

The IMB model is highly generalizable and has undergone empirical testing in various target populations. It has been used to predict AIDS preventive behaviour in two studies involving populations of gay men and heterosexual university students (Fisher & Fisher, 1992; Fisher et al., 1991; Fisher & Fisher, 1993). In these two studies, the validity of the model was supported; the determinants of the model explained a significant proportion of the variance in gay men's and university students' AIDS preventive behaviour. The stability of the model was supported with the ability of the model to predict AIDS-preventive behaviours across a two-month time period. Similarly in a recent study, J.D. Fisher, W.A. Fisher, Williams, and Malloy (1993) found support for the model with a minority, inner-city adolescent population.

The purpose of this secondary data analysis is to explore the plausibility of using Fisher and Fisher's IMB model to predict and explain AIDS preventive behaviour in Canadian fist-year college and university students.

This study will investigate the relationship between a) young adults' knowledge about HIV/AIDS, motivation to change AIDS risk behaviour, and behavioural skills and b) AIDS preventive behaviour. Also, the relative importance of model components by gender will be examined.

## Hypotheses and Objectives

The first two hypotheses of this study are concerned with the relationship between the components of the model. The remaining two objectives examine the relative importance of the separate components of the model.

I. Knowledge about HIV/AIDS and motivation to perform AIDS preventive behaviours will account for AIDS preventive behavioural skills.

II. Motivation to perform AIDS preventive behaviours, and AIDS preventive behavioural skills will predict AIDS preventive behaviours.

III. To examine whether normative influences will be of greater importance in explaining frequency of condom use for males as compared to females.

IV. To determine whether there are any differences in how important behavioural skills are in explaining the number of sexual partners for males as compared to females.

# CHAPTER III

## REVIEW OF THE LITERATURE

Comparing results among different studies is often not possible or leads to inaccuracies due to differences in subject samples, geographic sites, and time of data collection. However, despite these differences, sufficient agreement among factors associated with AIDS preventive behaviours does exist to suggest an organized integration of these results.

This review of the literature will focus on the components of the IMB model as they relate to AIDS preventive behaviours in young adults. Discussion of the determinants will include knowledge about HIV/AIDS, motivational support, AIDS preventive behavioural skills, and AIDS preventive behaviours. Brief descriptive statistics of each of the components will be reported first, followed by comparisons by gender. Finally, relationships between the components of the model will be discussed.

### Knowledge about HIV/AIDS

Most of the studies in the literature that assessed college students' knowledge about HIV/AIDS covered topics such as: what HIV/AIDS is, means of HIV/AIDS transmission and prevention, and what sexual behaviours are more or less risky ( Diloria, Parsons, Lehr, Adame, & Carlone, 1993; Bustamante, 1992; E.M. Fielstein, L.L. Fielstein, & Hazlewood, 1992; Halstead, Vitous, & Derbort, 1990; Robb, Beltran, Katz, & Foxman, 1991; Ku, Sonenstein, & Pleck, 1992; Vicenzi & Thiel, 1992; Walters, 1992).

There are mixed results concerning the accuracy of college students' AIDS-related knowledge. Earlier studies

have shown that even though college students have the basic knowledge and facts related to AIDS and HIV, their information is incomplete when it comes to the transmission of the HIV and its effect on AIDS- preventive behaviours (Goodwin & Roscoe, 1988; Gray & Saracino, 1989; Halstead et al., 1990). This gap in the AIDS-related knowledge, which can be due to an inaccuracy or confusion in the information received is considered critical when considering the college students' developmental stage.

According to earlier studies in the literature, one of the gaps in the knowledge level of young adults is in the area of transmission of the HIV through casual contact (Goodwin & Roscoe, 1988; Gray & Saracino, 1989). An earlier study conducted by Goodwin and Roscoe (1988) found that undergraduate college students had moderate knowledge levels in the area of HIV transmission. A study conducted by Grieger and Ponterotto (1988), however, found that late adolescents had accurate knowledge in regards to the transmission of HIV through body fluids. In a more recent study conducted by Halstead et al (1990 ), even though the students seemed to know that the HIV could not be transmitted through casual contact, the majority still reacted negatively towards people with AIDS handling food. However, other researchers (Edwards & Hiday, 1987; Goodwin & Roscoe, 1988) found that students were not afraid of catching AIDS through casual contact.

Recent studies support the trend that the knowledge level of late adolescents is increasing with time (Adame, Taylor, Mary, Wang, & Abbas, 1991; Fielstein et al., 1992; Fisher & Misovich, 1990; Ku et al., 1992; Petrosa & Wessinger, 1990; Roscoe and Kruger, 1990; Vicenzi & Thiel, 1992). This emerging trend can be seen as a result of more AIDS education programs starting at the school level and the increase in AIDS awareness through media reports. As

compared to earlier studies, recent studies have indicated that college students possess higher levels of AIDS-related information which helps them in making adequate decisions about HIV/AIDS preventive behaviours. Nevertheless, when looking at the more recent studies, it seems that college students' concerns about contracting AIDS through casual contact have not disappeared with time (Bustamante, 1992; Diloria et al., 1993; Jacobs, 1992; Madhok, McCallum, McEwan, & Bhopal, 1993). Young adults seem to be unsure about ways one cannot be infected. This belief has been mostly influenced by the media which has suggested the possibility of transmission of the HIV through nonsexual exchange of body fluids such as tears and saliva.

The effect of gender on students' knowledge of HIV/AIDS is unclear. Jones, Ellis, Tappe, & Lindsay (1991) found that males in their study were less sure of transmission by casual contact than females (i.e. holding hands and being in class with a person who is HIV positive). Huszti, Clopton, & Mason (1989) reported that females in their study had significantly higher knowledge scores than males on the pretest. Similarly, Fielstein et al. (1992) indicated that female college students in their study exhibited somewhat higher levels of AIDS-related general knowledge, transmission and prevention and in overall AIDS knowledge as compared to males. In contrast, the Canada Youth and AIDS study (King et al., 1988) found that there was no difference between males and females on knowledge. Similarly, Robb et al. (1991) indicated that male university students in their study had higher levels in overall AIDS knowledge than females. Further research that controls for variables such as academic achievement, intellectual level and other related variables is recommended in order to detect the effect of various educational programs on both genders.

Fisher and Fisher ascertain that both the knowledge and motivational components influence AIDS preventive behaviours indirectly through the behavioural skills component. However, both components may have a direct influence on behaviour in situations where the need for negotiation and other AIDS-related behavioural skills is not high.

Most of AIDS education programs have been successful at increasing the knowledge level of adolescents with minimal or no effects on behaviour (Mickler, 1993; Romer & Hornik, 1992; Vicenzi & Thiel, 1992; Baldwin & Baldwin, 1988). Overall, the knowledge preventive-behaviour relationship has been shown to have different results in studies on adolescents, with some confirming a knowledge-behaviour relationship (Catania, Kegeles, & Coates, 1990; Ku et al., 1992) and others failing to detect such a relationship (Adame et al., 1991; DiClemente, 1990; Mickler, 1993; Romer & Hornik, 1992; Vicenzi & Thiel, 1992). Most of these researchers and other researchers as well (Baldwin et al., 1990; Caron, Davis, Wynn, & Roberts, 1992; Carroll, 1991) agree that while necessary, knowledge alone is not sufficient to motivate people to act in a healthful way.

A study involving university students was conducted in order to determine the effect of AIDS-related knowledge on sexual behaviour (Roscoe & Kruger, 1990). The researchers found that, even though students had high AIDS-related knowledge levels, only one third of them had changed their sexual behaviour as a reaction to the global threat of AIDS. A trend analysis study examined the affect of AIDS awareness on the behaviour of Canadian youth between 1985 and 1989 with similar results (Maticka-Tyndale, 1991). Although the students' knowledge levels have become accurate with time, the effect of the knowledge increase on safer sexual practices was minimal. Similarly, Romer and Hornik (1992) argued that basic AIDS related knowledge was not sufficient

for changing young adults' behaviour unless socially mediated factors were taken into consideration. As well, Caron et al. (1992) indicated that knowledge-based campaigns alone were not sufficient to change the behaviour of young adults.

The results of the above studies support earlier studies which found that the effect of AIDS-related information on sexual behaviour was minimal (Baldwin & Baldwin , 1988; Strunin & Hingson, 1987). The Baldwin and Baldwin (1988) study, for instance, found that even though college students in their sample had high knowledge levels about AIDS, less than 15% of the sample used condoms consistently and almost two thirds reported never using condoms during sexual intercourse.

In a study involving a sample of U.S. males, Ku et al. (1992) found somewhat different results. Multivariate analyses showed that receiving AIDS education was associated with modest but significant decreases in the number of sexual partners and frequency of intercourse in the year prior to the survey. The increase in AIDS knowledge levels was also associated with more consistent condom use. However, even though the instructional program resulted in increases in AIDS knowledge, these increases were not always correlated with safer behaviour.

According to the IMB model, the effect of AIDS preventive knowledge on behaviour is mediated through behavioural skills. In a study involving college students, Vicenzi and Thiel (1992) reported that even though their educational module did not increase the students' safer sex practices, the students reported discussing AIDS more often with friends and parents.

In essence, recent studies support the trend that the knowledge level of late adolescents is increasing with time.

Although young adults have become more knowledgeable about HIV/AIDS, their information is incomplete when it comes to the transmission of the HIV and its effect on AIDS-preventive behaviours. Most of the studies suggest that gender does not seem to consistently affect students' knowledge of HIV/AIDS among students. Finally, researchers concur that, while necessary, knowledge alone is not sufficient to motivate people to act in a healthy way. Not only do young people need the necessary information about HIV/AIDS, they should possess adequate skills and be motivated to perform AIDS preventive behaviours.

## Motivation

Relatively few studies in the literature considered motivation as a determinant of AIDS preventive behaviours. Studies that assessed motivation to perform AIDS preventive behaviours suggest that motivation is a function of certain factors such as attitudes toward AIDS preventive-behaviours (Fisher & Fisher, 1991; Pleck, Sonenstein, & Ku, 1990); social norms (DiClemente, 1990; DiClemente & Fisher, 1991; Jemmott & Jemmott, 1990); perceived susceptibility to HIV (Adame et al., 1991; Catania et al., 1990; Yep, 1993); and perceived costs and benefits of AIDS preventive-behaviour (Fisher & Misovich, 1990; Hingson, Strunin, Berlin, & Heeren, 1990). In other words, individuals who have positive attitudes towards the use of condoms, have social norms supportive of AIDS preventive behaviours, believe they are personally susceptible to HIV infection, and see few barriers to the use of condoms are more likely to adopt AIDS preventive behaviours.

Based on Fisher and Fisher's IMB model and in accord with Fishbein and Ajzen's theory of reasoned action, motivation to perform AIDS preventive behaviours is a function of attitudes toward the behaviour and of relevant

subjective norms regarding the AIDS preventive act. The IMB model assumes that other factors which may affect motivation (e.g. perceived susceptibility and perceived cost and benefits) will work through the attitudes and subjective norms components of the IMB model (Fisher & Fisher, 1992; Yep, 1993). Thus, in order to increase motivation to modify AIDS-risk behaviours, AIDS education programs should promote proprevention attitudes and/or social norms that foster AIDS preventive behaviours.

According to the IMB model, motivation is regarded as a highly generalizable determinant of AIDS preventive behaviours in various target populations (Fisher & Fisher, 1992). As well, the motivational construct should have content that is tailored to the population under study (i.e. specific to groups with various sexual orientations, ethnic backgrounds, religious practices, etc.) and to the specific AIDS preventive behaviours of interest (e.g. use of condoms, abstinence, HIV testing, etc.).

According to Fisher and Fisher's (1992) IMB model, motivation to perform AIDS preventive behaviours can affect behaviour either directly or indirectly. Indirectly, motivation is thought to affect AIDS preventive behaviour by acting through the behavioural skills component of the model. As well, motivation can have a direct effect on behaviour through its main determinants, namely attitudes and subjective norms, and intentions. Examination of the components of the motivation construct will be provided.

## Attitudes

Attitudes, values, and beliefs frequently play a crucial role in motivating people to practice healthy behaviour. Overall, studies that focused on adolescents' attitudes toward AIDS preventive behaviours have shown mixed results,

with some reporting negative attitudes (Jemmott, Jemmott, & Fong, 1992; Siegal, Lazarus, Krasnovsky, Durbin, & Chesney, 1991; Tashakkori Cleaveland, 1990) and others finding support for positive personal attitudes. (Vicenzi & Thiel, 1992). The present study will focus on college students' attitudes toward the use of condoms.

There seems to be inconsistency in the literature on young adults' attitudes toward use of condoms. A secondary data analysis from the National Adolescent Student Health Survey which examined U.S. students' attitudes toward use of condoms found support for positive attitudes toward use of condoms (U.S. Department of Health, 1988). On the other hand, Siegal et al. (1991) indicated that more than 50% of adolescents in their study thought that sexual pleasure decreased when they used condoms. Similarly, Tashakkori and Cleaveland (1990) reported that 54% - 70% of college students in their study felt that the use of condoms would cause inconvenience and reduction in the enjoyment of sex .

Attitudes toward use of condoms have been found to vary by gender. In a study involving students, Siegal et al. (1991) examined perceptions about acceptability of condoms. The researchers reported that a significantly higher percentage of males than females agreed that condom use interferes with the sexual pleasure and that condoms were not very available. Similarly, in another study involving college students, the researchers indicated that male subjects had more negative attitudes toward condom use as compared to females (O'Leary, Goodhart, Jemmott & Boccher-Lattimore, 1992). As well, other studies indicated that female college and university students generally had more favourable attitudes toward the use of condoms as compared to males (Moore & Rosenthal, 1991) but were less likely to buy condoms or carry them (Sacco, Thompson, Rickman, Levine, & Reed; 1991). Gender differences in attitudes toward condom

use can be moderated through active educational programs (Taylor, 1992).

The attitude-behaviour relationship as it pertains to AIDS prevention has been characterized by some inconsistency in the literature, with some studies supporting a significant relationship (W.A. Fisher, J.D. Fisher, & Rye, 1993; Jemmott & Jemmott, 1990; Oswalt & Matsen, 1992; Pleck et al., 1990) and others failing to find a relationship (Madhok et al., 1993; Vicenzi & Thiel, 1992). According to most studies, the more attitudes and behaviour correspond in terms of the level of specificity, the more likely the effect on behaviour (Fisher & Misovich, 1990). Positive attitudes toward AIDS preventive behaviours usually facilitate the formation of positive behaviours. Thus, facilitating positive attitudes and reducing the formation of negative attitudes toward specific AIDS preventive behaviours will more likely lead to favourable results.

A sizeable number of studies in the literature suggested an association between attitudes towards AIDS preventive behaviours and AIDS prevention among various populations (Fisher et al., 1993; Jemmott & Jemmott, 1990; Pleck et al., 1990; Ross, 1988). In studies that focused on use of condoms, it was found that beliefs about condom use were associated with actual use (Hingson et al., 1990; Siegal et al. 1991). Siegal et al. (1991) reported that adolescents' beliefs in effectiveness of condoms in preventing HIV transmission correlated positively with reported condom use. Individuals who believed that condoms were effective in preventing AIDS perfectly or pretty well during sexual intercourse were more likely to report increased condom use than individuals who believed that condoms work a little.

Similar results were reported by other studies in the literature. In a study that focused on college students'

sexual behaviour and reasons for not using condoms, general negative attitudes toward condoms and the decrease in sexual pleasure were among the main reasons reported by the students (Oswalt & Matsen, 1992). In a study involving adolescent males, Pleck et al. (1990) investigated the influence of contraceptive attitudes on condom use. The researchers reported that having positive attitudes about birth control was found to have an important influence on the subjects' contraceptive use. In a study involving Australian college students, negative attitudes toward use of condoms were correlated with AIDS risky behaviours only among female subjects (Moore & Rosenthal, 1991).

In contrast, some studies in the literature found that even though college students had positive attitudes toward condom use, no significant associations were found between the students' attitudes and actual condom use (Madhok et al., 1993; Vicenzi & Thiel, 1992 ). In the Madhok et al. study, even though most of the students had favourable attitudes toward condom use, very few used condoms regularly. One possible explanation for this finding is that most of the students thought of abstinence as the only means to achieve safer sex. Students also seemed to be unaware of the role of nonpenetrative sex in preventing HIV infection.

To summarize, attitudes frequently play a crucial role in motivating people to practice healthy behaviour. Positive attitudes toward AIDS preventive behaviours usually lead to positive behaviours. As well, attitudes toward use of condoms have been found to vary by gender, with more males reporting negative attitudes toward condom use. Finally, despite the inconsistency in the attitude-behaviour relationship, there is evidence in the literature that suggests that attitudes towards AIDS preventive behaviours are associated with AIDS prevention in young people.

## Subjective Norms

Reference group norms, values, and beliefs affect people's behavioural choices regarding prevention (Romer & Hornik, 1992; Sacco et al., 1991). Social norms have been shown to play a powerful role in modifying HIV/AIDS risk behaviours (DiClemente, 1990; DiClemente & Fisher, 1991; Fisher & Misovich, 1990; Jemmott & Jemmott, 1991). In this regard, relevant group norms may be pro-prevention or promoting risky behaviours, which will ultimately have an effect on AIDS-preventive behaviours (Fisher & Misovich, 1990; Tashakkori & Cleaveland, 1990).

Groups can exert considerable pressure on individuals to avoid AIDS preventive behaviours, or to use them. For instance, Siegal et al. (1991) reported that more than 50% of adolescents in their study felt embarrassed to buy condoms. A major reason why group pressure can be so powerful in moderating behaviour is people's motivation to be liked by others, which often requires them to like others. Thus, if norms in the adolescent community could be changed into proprevention social norms, HIV/AIDS high risk behaviours will probably be reduced. For adolescents who have reported difficulties discussing AIDS prevention measures and safer sex practices, such changes in norms may alleviate some of the pressure of discussing condom use and other safer sex practices during intercourse.

Another reason why people conform to norms and values in their social group is that they fear rejection for nonconformity. People are less likely to behave in ways that will lead to the disapproval of others in their social group. Students reported that it was easier for them to be involved in unsafe sexual practices than to discuss AIDS prevention with their partner. Both males and females feared rejection by their sexual partner if they failed to conform to group

norms and brought up the topic of AIDS prevention (Fisher & Misovich, 1990).

The effect of normative influences on AIDS preventive behaviours is substantial. In a study involving 274 college students in a conservative small town in the United States, Tashakkori and Cleaveland (1990) found that an individual would be motivated to perform an AIDS preventive behaviour only if his/her partner approved of that behaviour. Moreover, when asked to rate certain normative groups in terms of favouring use of condoms, the sexual partner was perceived as favouring it the least after the minister. What seemed to add to the problem was the fact that condom use was discussed only moderately with sexual partners as compared to the other normative groups.

Norms that shape sex and gender roles may have an important effect on sexual behaviour. For instance, showing concern towards AIDS risk behaviours may interfere with the macho gender roles for males. Female gender roles, as well, may conflict with the assertive behaviours required for discussing sexual history, purchasing and using condoms with their partners (Sacco et al., 1991). Thus, when compared to females, males seem to be more influenced by normative groups when making decisions relevant to behaviour change. Roche and Ramsbey (1993) reported similar results. Female college students in their study were less likely than males to be affected by normative influences and seemed to overestimate the actual premarital sexual activity level of other referent groups.

Social norms are also associated with age. For example, it is normative or acceptable for adolescents to have a feeling of low vulnerability. Studies indicated that young adults assessed themselves to be less likely than a set of hypothetical persons to contract AIDS (Halstead et al., 1990;

Mickler, 1993). A study involving freshman students indicated that more than 50% of the subjects felt that they were at less risk than most people to get AIDS, regardless of their behaviour (Adame et al., 1991). It seems that young people often value adventure and risk taking and thus do not want to appear to the group as being any less risky by showing concern about AIDS preventive behaviours.

To be effective, AIDS prevention programs should identify the social factors that support behavioural change among young adults. Moreover, these programs should attempt to work on the different groups that affect the adolescents' behaviours of interest. Fisher & Misovich (1990) argue that normative influences play an important role in young adults' decisions about health risk behaviours. A study involving college students found that one of the strong predictors of the young adults' use of condoms while engaging in sexual activity was their perception that the prevalent norms supported safer sex practices and the use of condoms (Tashakkori & Cleaveland, 1990).

Other studies reported similar findings (Hingson et al., 1990). Although beliefs about condom use were associated with actual use, perceived expectations of peers and sexual partners regarding contraception were more important than parental norms in explaining intentions to use contraception. In these studies, adolescents had a perception of their peers' attitudes different than what they really were. Consequences of this perception may produce less condom use because it is not perceived as cool by their peers, when the peers may personally support condom use.

In summary, social norms have been shown to play a powerful role in modifying HIV/AIDS risk behaviours. Groups can exert considerable pressure on individuals to avoid AIDS preventive behaviours, or to use them. Also, people will

conform to norms and values in their social group if they fear rejection for nonconformity. Norms that shape sex and gender roles may have an important effect on sexual behaviour. Finally, normative influences play an important role in adolescent decisions about health risk behaviours.

## Intentions

Researchers concur that intentions to perform AIDS preventive behaviours are good predictors of behaviour. A study involving students indicated that more than 90% of the students had intentions to use condoms or to avoid drugs (Brown, Barone, Fritz,, Cebollero, & Nassau, 1991) Similarly, Poirier and Munro (1991) reported that more than 90% of students in their study had intentions to use condoms and talk to their partners about condom use if they were to have sex.

In contrast, in a study involving college students, Tashakkori and Cleaveland (1990) found that less than one percent of the respondents said they would use condoms every time they had oral sex, and only 10% said they would ever use condoms. According to the researcher, these low percentages would be mainly explained by perceived barriers such as negative attitudes toward condom use and perceptions of negative attitudes by normative groups.

Intentions to perform AIDS preventive behaviours vary by gender. Bustamante (1992) conducted a study involving undergraduate students and found that female subjects were more likely than males to be cautious during sexual encounters. A significantly higher proportion of women reported that they would not be involved in sexual intercourse with a partner who did not use condoms. When compared to females, males were less likely to resort to abstinence as an AIDS preventive measure. Almost 30% of the

males as compared to 50% of the females reported being either very or somewhat likely to abstain. As well, males were less likely than females to use condoms (80.7% versus 94.3%).

The intention-behaviour relationship has been well established in the literature. There is empirical evidence for a strong relationship between intention and behaviour. According to the theory of reasoned action (Fishbein & Ajzen, 1975), a number of factors have been shown to influence this relationship, such as: time between measurement of intention and observation of the behaviour; salience of beliefs regarding a behaviour's positive or negative features; exposure to new information; the individual's ability to perform the behaviour; and issues related to measurement such as correspondence between specificity of items used to measure intention and the behavioural criterion, as well as the extent to which the measured intention represents the respondent's true intention. Thus, taking these variables into consideration, the intention to perform a behaviour would be a good predictor of the actual behaviour.

According to a study conducted by Tashakkori and Thompson (1992), general AIDS preventive intentions and specific intentions for using condoms were considered as possible predictors for future behaviour in college students. Similarly, in an earlier study to measure predictors of contraceptive behaviour (condom use) among university men, Fisher (1984) found that behavioural intentions predicted condom use across a month's time. Those who intended to use condoms were much more motivated to comply with normative groups advocating condom use as compared to those who did not intend to use condoms.

In essence, there is an empirical evidence for a strong relationship between intention and behaviour, with pro-prevention intentions being associated with AIDS preventive

behaviours. There are mixed results in regard to the percentage of adolescents intending to use condoms in the future. In studies were the percentage of students intending to use condoms is low, other factors such as normative influences and attitudes should be taken into consideration. Intentions vary by gender with females being more likely than males to take precautions during sexual encounters. Finally, even though motivation seems to be necessary for behaviour change, having the adequate behavioural skills is critical for behavioural change to be enacted.

## Behavioural Skills

Researchers suggest that certain psychosocial factors need to be included in various AIDS prevention programs (O'Keefe, Nesselhof-Kendall, & Baum, 1990). Even though knowledge and motivation are necessary for behaviour change, other factors such as behavioural skills need to be considered in order for the behaviour to be enacted.

Gray and Saracino (1991) examined adolescents' likelihood of communication with potential sexual partners. The researchers reported that less than one quarter of the participants were likely to ask a new sexual partner about their sexual history and a similar proportion were likely to ask their partner about intravenous drug use. More than 50% of the participants, however, indicated that they would discuss using a condom with their partner.

Researchers concur that the effect of behavioural skills on AIDS preventive behaviour varies according to gender. Sacco et al. (1991) reported that female students in their study took a more passive role in safer sexual practices. Males, on the other hand, were expected to purchase and provide condoms during sexual encounters. Studies promoting

the direct involvement of females would help to eliminate the inhibition of females and would ultimately increase the frequency of condom use during sexual intercourse.

Another study involving college students examined the variation of behavioural skills by gender (Stebleton & Rothenberger, 1993). A higher percentage of females as compared to males reported that they checked their partners' sexual history before engaging in sexual intercourse. Moreover, men more frequently lied to their partners about their past sexual history as compared to females. Similarly, in a study that examined the effect of AIDS awareness on sexual behaviour, female students were more likely than males to ask sexual partners about their past sexual experiences (Moore, Chia, & Castellow, 1988).

AIDS preventive behavioural skills are considered good predictors of AIDS preventive behaviours. In a study involving college students, some of the listed obstacles to practicing safer sex included embarrassment and difficulty in discussing use of condoms (Halstead et al., 1990). Oswalt and Matsen (1991) reported that one of the most common reasons given for not using condoms was that students felt secure about their partner's sexual history. Given that a significant proportion of the students indicated that they will not inform their partner if they were ever infected with the HIV, this trust is considered a possible threat for contracting AIDS. In a study involving first-year university students, McLean (1994) tested the effect of a peer education program, which included information and skills building, on the students' behaviour. The researcher found that the program successfully changed the students' knowledge, attitudes and AIDS preventive behaviour.

Another study investigated the relationship of psychosocial factors to changes in the AIDS preventive

behaviours of college students (Jurich, Adams, & Schulenberg, 1992). Communication and decision making skills related to the use of safer sexual practices were correlated with changes in AIDS preventive behaviours. However, the direction of the correlation was opposite from the anticipated direction. Students who had good communication skills with their sexual partners were less likely to have acquired AIDS preventive behaviours. According to the researchers, one possible explanation for these findings could be due to the role that romantic involvement plays in affecting AIDS preventive behaviours. The more people are romantically involved, the less likely the need for moving toward safer sexual practices.

To summarize, in general, participants are more likely to discuss condom use with their partners as compared to sexual history. The effect of behavioural skills on AIDS preventive behaviour varies according to gender. As compared to males, females are more likely to discuss sexual history with their partners. However, males are expected to be more directly involved in purchasing and using condoms. Finally, AIDS preventive behavioural skills are considered good predictors of AIDS preventive behaviours, with those listing obstacles to practicing safer sex being less likely to acquire AIDS preventive behaviours.

## Behaviour

For the past fifteen years, studies have shown that premarital sexual behaviour is increasing in all age groups (Bell & Coughy, 1980; Bustamante, 1992; Glenn & Weaver, 1979; Oswalt & Matsen, 1992; Roche, 1986). As a result, the possibility of contracting the HIV and other STDs is increasing, as well.

Consistent and adequate use of condoms offered protection from STD and transmission in sexually active youth. Yet, studies find adolescent condom use inconsistent at best. A trend analysis involving young adult Canadians found that there was no shift towards more AIDS preventive behaviours between 1981 - 1988 (Maticka-Tyndale, 1991). Even though there was an increase in the possibility of some condom use, the percentage of those using condoms "frequently" or "always" was still low (18%). As well, it seems that those who used condoms some time only did that at the beginning of a relationship and then shifted to oral contraceptives once stability in the relationship was established. Similarly, Oswalt & Matsen (1992) reported that even though the students were aware of AIDS, more than 40% of them still did not use condoms half of the time that they were involved in sexual intercourse. As well, as the number of sexual partners increased, the frequency of condom use decreased. Ninety percent of the students never used condoms during anal sex.

Sexual intercourse with several partners or being sexually involved with someone who has had multiple partners increases an individual's risk for contracting or transmitting the AIDS virus. It has been well documented that college students are sexually active and engage in sexual activity with many partners during their lives. According to Tashakkori and Cleaveland (1990), 70% of college students in their sample indicated that they were sexually active. Almost half of those who were sexually active indicated having one partner, 22% indicated having 2, and 17% reported having 3 or 4 partners during the year.

Maticka-Tyndale (1991) reported that there was no decrease in multiple-partner relationships among Canadian young adults between 1981 - 1988. As well, non-relationship coitus were not decreasing, either. Looking at the trends in

sexual activity among young adults, it seems that this trend is likely to continue for some time. Thus, it is education programs that advocate safer sexual practices among young adults are critical.

Researchers agree that changes in AIDS preventive behaviours are affected by gender (Turner, 1993). In a study involving undergraduate students, Bustamante (1992) reported that women in his study were significantly more cautious than men in terms of AIDS risk behaviours. Jones et al. (1991) reported that male subjects in their study were more likely to be sexually active than females.

In summary, premarital sexual behaviour is increasing in all age groups which increases the possibility of contracting the HIV and other STDs. Even though consistent and adequate use of condoms offered protection from STD and HIV transmission in sexually active youth, yet condom use remains inconsistent at best. It has been documented that college students are sexually active and engage in sexual activity with many partners during their lives. Finally, multiple-partner relationships among Canadian young adults does not seem to be decreasing and it seems that this trend is likely to continue for some time.

# CHAPTER IV

## METHODS OF THE STUDY

This chapter details the methods used in the present study and includes the following topics: study sample, data collection, instrument, measures, and data analysis. Study limitations will be discussed at the end of this chapter.

The data for this thesis are from the Canada Youth and AIDS Study (M.A. King, Coles, & J.C. King, 1988) conducted by the Social Program Evaluation Group at Queen's University and funded by the National Health Research and Development Program (NHRDP), Health and Welfare Canada, in collaboration with the Federal Centre for AIDS (FCA). This study was originally initiated by discussions among the FCA, the Canadian Public Health Association (CPHA) and representatives from Canadian universities in order to examine the response of Canadian youth to AIDS and other STDs.

The main focus of the Canada Youth and AIDS Study (CYAS) was on the knowledge, attitudes and behaviours of over 36,000 young Canadians, ages 11 to 21 years, with regard to AIDS and other STDs. The study was specifically intended to understand the nature and the extent of young people's knowledge about AIDS , sources of information, their attitudes toward people living with AIDS and to what extent knowledge would affect attitudes and AIDS preventive behaviours. The college/university sample of the CYAS has been used in this study.

### Study Sample

Subjects for this study were first year students from post-secondary institutions across Canada which included universities, colleges, colleges d'enseignements generale et

professional (CEGEPs) and other public post-secondary institutions. Second-year CEGEP students in Quebec were included because their age is comparable with first-year students in other provinces. The number of institutions which responded to the survey are shown in Table 4.1.

Available demographic information on study subjects are presented in Tables 4.2 to 4.8. Almost sixty percent of the sample was female and fourty percent was male. Approximately sixty five percent of the respondents were between the ages of 18 and 19 years. The grade average of almost half of the students ranged between 70 - 79. Fourty one percent of the students went to church weekly or every now and then. The majority of the students (50%) lived with their parents and almost an equal percentage of students lived with same sex friends or in residences (12%). Finally, approximately 50% of the participants' mothers and fathers have had some secondary or secondary education.

## Data Collection

The sample used a two-stage cluster sampling procedure with the institution selected first and then the class. The sample was drawn with a maximum error of plus or minus 5% at a 90% confidence level. Post-secondary institutions were stratified by region and then sampled. Statistical adjustment was not needed since provincial and regional differences were not statistically significant. Within provinces, post-secondary institutions were first put in order based on region, size and type of program and sampled systematically. Then, specific first year classes were selected based on equal gender proportions and the willingness of instructors to have their classes participate. In most instances classes were randomly selected from among the pool of classes which met the above criteria while in others the first classes meeting the criteria were sampled.

One hundred first-year college and one hundred first-year university students across two disciplines were surveyed from each province. Second-year students in the CEGEP program in Quebec were included in the sample since their ages were comparable with first-year students in other provinces.

Among the 4,809 respondents, a total of 3,606 students in colleges and universities indicated the type of program in which they were enrolled (refer to Table 4.9 for a summary of students in various program categories).

## Sampling Bias

In order to obtain equal gender numbers, programs such as engineering and nursing in which either males or females were predominant were not selected; nevertheless, females continued to outnumber males in the programs sampled. This, however, did not constitute a major problem because the findings in this thesis were presented by gender.

The missing number of respondents in some provinces has little influence on national findings but it affects comparisons between and among provinces and territories. Consequently, differences between provinces of 15 percentage points or more were considered.

## Instrument

Some of the items used in the CYAS were selected from instruments used in other studies. The rest of the items were specifically designed for the purpose of the study. Items used in this thesis have been selected from the University/College Canada Youth and AIDS Survey. Specific items that were thought to be helpful in measuring the components of the IMB model were selected and scales were

created. Scales are considered useful in that they reduce the amount of data, make analysis more meaningful and results easier to interpret. Factor analysis was used to refine the constructed scales and Cronbach alphas were calculated in order to measure the item consistency of these scales.

As reported by the research team for the CYAS, the University/College Survey was pilot-tested. Pre-pilot focus group interviews were conducted with 100 college and 125 university students in order to determine the knowledge level of the students and the appropriateness of the language used in the items of the questionnaire. In general, a typical focus group session was conducted in two stages: first a short questionnaire was given to all students, followed by a discussion of AIDS related issues. Second, a maximum of four groups made of five to six students each underwent in-depth interviewing in order to determine their views and concerns.

In designing the items that constituted the instrument in the CYAS, the research team relied heavily on the pre-pilot and pilot studies. Items with multiple concepts that could produce more than one possible response were avoided. Questions that seemed to threaten the respondents were changed and the use of slang was kept to minimal. Students were asked to indicate questions which they thought were ambiguous or confusing and several revisions of the instrument were made accordingly.

A standardized instrument should have a narrow range of item difficulty levels (.3 to .7) in order to allow for the maximum differentiation of individual scores. This condition was not met in the instrument used because of the use of aggregate scores. Thus, even though in many items used in the instrument over 80% of the respondents answered them correctly, the items were still retained if they had high face and content validity. Face validity of items used was

assessed by study advisers, teachers, and students. As for content validity, items were initially rated by health experts and then by teachers and students during the pilot studies.

Demographic information were collected using open-ended questions and Likert-type scale response categories were used with the rest of the items in the questionnaire.

## Measures

All measures in this study were obtained from the University/College Canada Youth and AIDS Survey. The measures used are described below and are arranged according to the proposed conceptual model. Measures for the dependent variable are described first. For measures that involve the creation of indices, tables containing the original items used in the formation of the indices as well as response categories are presented first. Constructed multi-item scales and Cronbach alphas are then presented. The students' responses were factor analyzed. Item loadings at or beyond the 0.50 level were retained. Factor loadings for items and correlation coefficients are presented in Appendices A and B, respectively. The last table includes a description of the final items or indices used in this study. The complete instrument used in the CYAS is presented in appendix C.

### Outcome Variables

There were two major dependent variables in this study: a single item which yielded the number of persons that respondents had sexual intercourse with; and another single item variable which described how often respondents and/or their sexual partners used condoms to prevent sexually transmitted diseases. These measures represent the behaviour to be predicted and explained according to the IMB model.

Table 4.10 is a description of the dependent variables used in this study and their response categories. Tables 4.11 and 4.12 show the distribution of scores for the dependent variables used in this study.

## Predictor Variables

The two main predictor variables in this study are information and motivation. In order to measure the information construct of the IMB model, students' responses to the Knowledge of AIDS section in the University/College Canada Youth and AIDS Survey were factor analyzed. Item loadings at or beyond the 0.50 level were retained. Consequently, three separate, summed indicators were created: a three-item scale describing the respondents' general knowledge about HIV/AIDS (Cronbach's alpha=.50); a scale of two items measuring information about condoms (Cronbach's alpha=.72); and a five-item scale describing the participants' knowledge about the riskiness of the HIV/AIDS (Cronbach's alpha=.68).

Response options for each knowledge item were: "yes", "no", and "Don't know". Items were recoded such that incorrect and "don't know" responses received a zero score. A higher score indicated a higher level of knowledge. Items which comprise the three information scales, as well as response categories are presented in Table 4.13.

Motivation to perform HIV/AIDS preventive behaviours is the second determinant of behaviour according to the IMB model. In this study, motivation was measured according to the constructs and operations of Fishbein and Ajzen's (1975) Theory of Reasoned Action. Item loadings at or beyond the 0.50 level were retained and three separate measures of the motivational construct (attitudes, subjective norms and intentions) were created.

The attitude scale was measured by one item: "A condom interferes with sexual pleasure" that assesses the participants' feelings towards the use of condoms. Normative influences were measured by two items: "I would be embarrassed to buy condoms" and "If you carry a condom, people will think you are willing to have sex". The two-item scale had an alpha of 0.40. Behavioural intentions were measured by two items: "I expect to have casual sex (one night stands) in the future" and "For the rest of my life I intend to have sex with only one partner". Responses to the two items which measured behavioural intentions were totalled to obtain a single index of behavioural intentions (the two-item scale had an alpha of 0.77). Items which comprise the three measures of motivation, as well as response categories are presented in Table 4.14.

Response categories for the items that comprised the motivational construct were as follows: 1 = strongly agree, 2 = agree, 3 = uncertain, 4 = disagree, and 5 = strongly disagree. Coding for measures of the motivational construct remained the same such that the higher the score the better the AIDS preventive behavioural skills, intentions, and attitudes. The only exception is the item "For the rest of my life I intend to have sex with only one partner". This item was recoded such that the more the agreement the higher the score.

## Mediating Variable

As proposed in the IMB model, the behavioural skills construct is viewed as a function of two determinants: AIDS related information and motivation. Thus, AIDS preventive behavioural skills are expected to mediate the effects of knowledge and motivation on AIDS preventive behaviour.

In this study, students' responses to the Views Section of the College/University Canada Youth and AIDS Survey were factor analyzed. Item loadings at or beyond the 0.50 level were retained. The behavioural skills index (Cronbach 's alpha=.72) used three Likert-type items which described whether the respondents would tell their sexual partner if they thought they had AIDS; whether they would ask their partners about their past sexual experiences; and whether they would talk to their partners about condom use. Items which comprise the behavioural skills scale, as well as response categories are presented in Table 4.15.

Referring to the items used in the behavioural skills scale, the item responses are all of the form 1=Strongly Agree, 2=Agree, 3=Undecided, 4=Disagree, and 5=Strongly Disagree. The three items were combined to create the behavioural skills scale using the following two steps:

Step 1: Reverse responses 1-5
the response 5 becomes 1
the response 4 becomes 2
the response 3 remains 3
the response 2 becomes 4
the response 1 becomes 5

Step 2: Sum the single item scores to get the raw scale score

## Control Variables

The following variables were included as possible predictors in the regression analyses: Age, gender (dummy coded such that males=0, females=1), grade point average, father's education, mother's education, church attendance, and living arrangement.

Fathers' and mothers' education variables were recoded such that the higher the score, the better the education. Response categories such as "other" and "Don't Know" were given a zero score.

Church attendance was reverse coded such that a higher score indicated more frequent church attendance. As for the living arrangement variable, those respondents who lived with their parents at home received a score of one and any other living arrangement received a zero score. Items that comprised the control variables with their response categories are presented in Appendix C. An illustration of the components of the IMB model as operationalized in this study are presented in Figure 2.

To summarize, frequency of condom use and number of sexual partners are the two main dependent variables in this study. There are two predictor variables : information about HIV/AIDS (general, risk, and condom) and motivation to perform AIDS preventive behaviours (subjective norms, attitudes, and behavioural intentions). AIDS preventive behavioural skills acts as a mediating variable for this model. Internal consistency measures (Cronbach alphas) for all the scales used in this study are included in Table 4.16. Finally, a description of all the variables as they were used in the regression analyses in this study are presented in Table 4.17.

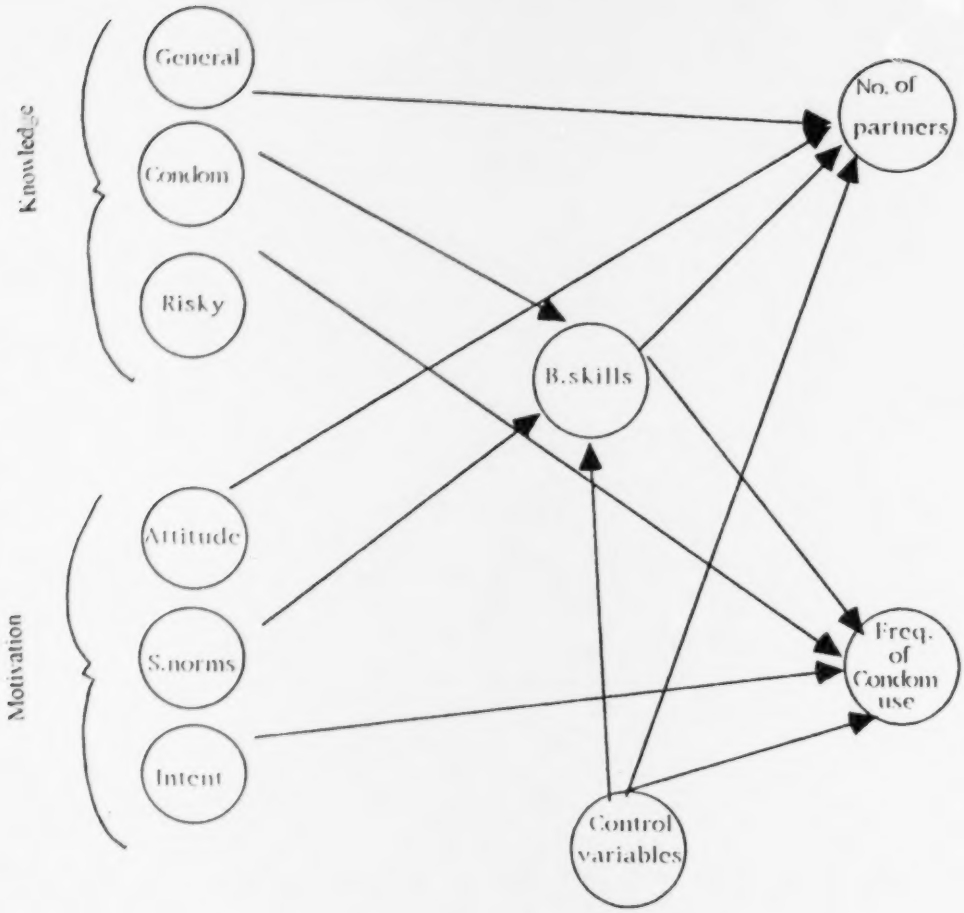


Fig. 2
The IMB Model
as Operationalized in This Study

## Data Analysis

Multiple regression procedures were used to test all hypotheses and objectives of the study. The first and second hypotheses are concerned with testing the IMB model. For the first hypothesis, measures of knowledge and motivation were regressed on AIDS preventive behavioural skills. For the second hypothesis, all measures of information, motivation and the behavioural skills index were regressed on behaviour. For both regression equations, control variables were entered as possible predictors of behavioural skills and behaviour.

Multiple regression analyses were also used to test objectives three and four. These objectives examined the relative importance of subjective norms and behavioural skills in explaining AIDS preventive behaviours by gender. The sample was divided into two groups with all male subjects in one group and all female subjects in the second group. Standardized regression coefficients (Betas) were used to evaluate the relative importance of each variable in explaining AIDS preventive behaviours.

## Limitations of this Study

It is important to discuss the limitations of this study so that the results can be interpreted with these limitations in mind. The methodological limitations to be discussed are mainly measurement related.

The area of greatest concern in this study relates to issues of measurement. This is a secondary data analysis and as such, the items used to measure the components of the IMB model were not written with that purpose in mind. However, in many cases the items that were used did closely approximate the model components as suggested by Fisher and

Fisher (1991). Depending on the results of the study, this discrepancy can be looked at in one of two ways. If the study does not find support for the IMB model, then it would be difficult to conclude whether it is because of the difference in measurement or because the population do not fit the model. Alternatively, if the data do support the model, then it is an evidence of the generalizability of the model in a new population despite the use of different measures for the main constructs.

In this study, and in accordance with Fisher and Fisher's suggested measurement of motivation, three separate indicators were used to measure motivation: intentions, attitudes, and subjective norms. It is important to note that a low correlation between the variable and the behaviour being measured might result if there is lack of congruence between the items measuring the variable and those measuring the behaviour. The lack of concise definition and operationalization of motivation as a model component is a major weakness in the IMB model. Thus, this lack of precision in measurement must be kept in mind when comparing results of this study with other studies.

Table 4.1

Post-Secondary Sample (number of institutions)

| | |
|---|---|
| post-secondary institutions | 169 |
| Total selected | 60 |
| Number responded | 45 |
| Additional institutions | 6 |
| Total responded | 51 |

Table 4.2

Distribution of Subjects by Gender

| Gender | Frequency | Valid Percent |
|---|---|---|
| Male | 2218 | 40.5 |
| Female | 3256 | 59.5 |
| TOTAL | 5474 | 100.0 |

Table 4.3

Distribution of Subjects by Age

| Age | Frequency | Valid Percent |
|---|---|---|
| 16 | 6 | 0.1 |
| 17 | 101 | 1.8 |
| 18 | 1684 | 30.7 |
| 19 | 1763 | 32.1 |
| 20 | 960 | 17.5 |
| 21 | 597 | 10.9 |
| 22 | 377 | 6.9 |
| TOTAL | 5488 | 100.0 |

Table 4.4

Distribution of Subjects by Grade Average

| Grade average | Frequency | Valid percent |
|---|---|---|
| <50 | 48 | 0.9 |
| 50-59 | 189 | 3.7 |
| 60-69 | 1502 | 29.1 |
| 70-79 | 2565 | 49.6 |
| 80+ | 864 | 16.7 |
| TOTAL | 5168 | 100.0 |

Table 4.5

Distribution of Subjects by Frequency of Church Attendance

| Church attendance | Frequency | Valid percent |
|---|---|---|
| Weekly | 1141 | 20.9 |
| Now and then | 1149 | 21.0 |
| Special occasion | 1923 | 35.2 |
| Never | 1253 | 22.9 |
| TOTAL | 5466 | 100.0 |

Table 4.6

Distribution of Subjects by Living Arrangement

| Living arrangement | Frequency | Valid percent |
|---|---|---|
| Family | 2741 | 50.3 |
| Relatives | 245 | 4.5 |
| Same sex friends | 691 | 12.7 |
| Opp sex friends | 197 | 3.6 |
| Mixed sex friends | 146 | 2.7 |
| Roommate in res. | 649 | 11.9 |
| Self in res. | 243 | 4.5 |
| Self non-res. | 262 | 4.8 |
| Other | 271 | 5.0 |
| TOTAL | 5445 | 100.0 |

Table4.7

Distribution of Subjects by Mother's Highest Education

| Educational level | Frequency | Valid percent |
|---|---|---|
| Elem or less | 510 | 9.4 |
| Some secondary | 1298 | 23.8 |
| Secondary | 1544 | 28.3 |
| College | 755 | 13.8 |
| University | 916 | 16.8 |
| Other | 279 | 5.1 |
| Don't know | 152 | 2.8 |
| TOTAL | 5454 | 100.0 |

Table 4.8

Distribution of Subjects by Father's Highest Education

| Educational level | Frequency | Valid percent |
|---|---|---|
| Elem or less | 694 | 12.7 |
| Some secondary | 1389 | 25.5 |
| Secondary | 1171 | 21.5 |
| College | 535 | 9.8 |
| University | 1186 | 21.8 |
| Other | 237 | 4.3 |
| Don't know | 238 | 4.4 |
| TOTAL | 5450 | 100.0 |

Table 4.9

Number of College/University Respondents in Each Program

| | |
|---|---|
| Arts and Science | 1,047 |
| Business/Commerce | 686 |
| Education | 170 |
| Health Care | 319 |
| Physical Education | 228 |
| Sciences--Pure and Applied | 851 |
| Trades | 209 |
| Miscellaneous | 96 |
| TOTAL | 3,606 |

Table 4.10

Item Content and Response Categories for Dependent Variables

| Item Content, Abbreviations, and Response Categories | |
|---|---|
| Measures of AIDS Preventive Behaviour | |
| Number of Partners (Q19) | With approximately how many persons have you had sexual intercourse |
| Use of Condoms (Q22BB) | How often have you and your sexual partner(s) used condoms to prevent sexually transmitted diseases<br><br>Response categories are:<br>1=Never<br>2=Sometimes<br>3=Most of the Time<br>4=Always |

Table 4.11

Distribution of Subjects by Condom Use

| Condom use | Frequency | Valid percent |
|---|---|---|
| Never | 2167 | 57.3 |
| Sometimes | 700 | 18.5 |
| Most times | 326 | 8.6 |
| Always | 587 | 15.5 |
| TOTAL | 3780 | 100.0 |

Table 4.12

Distribution of Subjects by Number of Sexual Partners

| Number of sexual partners | Frequency | Valid percent |
|---|---|---|
| 0 | 1670 | 30.9 |
| 1 | 1253 | 23.2 |
| 2 | 618 | 11.4 |
| 3 | 462 | 8.6 |
| 4 | 290 | 5.4 |
| 5 | 295 | 5.5 |
| 6 | 155 | 2.9 |
| 7 | 93 | 1.7 |
| 8 | 76 | 1.4 |
| 9 | 23 | 0.4 |
| 10 | 157 | 2.9 |
| 11-99 | 306 | 5.7 |
| TOTAL | 5398 | 100.0 |

Table 4.13

Measures of AIDS Preventive Information

| Item Content, Abbreviations, and Response Categories |
|---|
| General Information Scale (General) |
| The AIDS virus is now called the human immunodeficiency virus (HIV)*. |
| The AIDS virus weakens the immune system by destroying red blood cells*. |
| AZT (azidothymidine) is a cure for AIDS*. |
| Condom Information Scale (Condom) |
| Vaseline is a good lubricant to use with a condom*. |
| Condoms used with a spermicidal foam or gel give effective protection from the AIDS virus*. |
| Riskiness Information Scale (Risky) |
| All homosexual (gay) men carry the AIDS virus*. |
| When a person shares drug needles, he or she is at risk of catching the AIDS virus*. |
| The AIDS virus may be spread from a female to a male during sexual intercourse*. |
| The AIDS virus can be spread through hugging*. |
| Having many sexual partners increases a person's risk of being infected with the AIDS virus*. |

* Response categories for these items are:
1=Yes, 2=No, 3=Don't Know

Table 4.14

Measures of Motivation

| Item Content, Abbreviations, and Response Categories |
|---|
| A condom interferes with pleasure*. |
| Subjective Norms Scale (S Norms) |
| I would be embarrassed to buy condoms*. |
| If you carry a condom, people will think you are willing to have sex*. |
| Intentions Scale (Intent) |
| I expect to have casual sex (one night stands) in the future*. |
| For the rest of my life I intend to have sex with only one partner*. |

* Response categories for these items are:
1=Strongly agree, 2=Agree, 3=Undecided, 4=Disagree
5=Strongly Disagree

Table 4.15

Behavioural Skills Scale

| Item Content, Abbreviations, and Response Categories | |
|---|---|
| B Skills | I would tell my sexual partner if I thought I had the AIDS virus.<br><br>Before considering sex, I would talk with my partner about his or her past sexual experiences.<br><br>I would talk to my sexual partner about using a condom for our protection.<br><br>Response categories are:<br>1=Strongly Agree<br>2=Agree<br>3=Undecided<br>4=Disagree<br>5=Strongly Disagree |

Table 4.16

Measures for Internal Consistency of Scales

| Scale | Number of items | Reliability (Cronbach alpha) |
|---|---|---|
| General | 3 | 0.50 |
| Risky | 5 | 0.68 |
| Condom | 2 | 0.72 |
| S.Norms | 2 | 0.40 |
| Intent | 2 | 0.77 |
| B.Skills | 3 | 0.72 |

Table 4.17

Variables and Scales Used in this Study

Behaviour

| | |
|---|---|
| Q19 | Single item measuring number of sexual partners. |
| Q22BB | Single item measuring frequency of use of condoms. |

Knowledge

| | |
|---|---|
| General | Scale: sum of 3 items measuring respondents' general information about HIV/AIDS. |
| Condom | Scale: sum of 2 items measuring students' information about condoms. |
| Risky | Scale: sum of 5 items measuring students' information about the riskiness of HIV/AIDS. |

Motivation

| | |
|---|---|
| Attitude | Single item measuring participants' attitudes toward use of condoms |
| S Norms | Scale: sum of 2 items measuring normative influences on use of condoms |
| Intent | Scale: sum of 2 items measuring students' perceived future performance of AIDS preventive behaviours. |

Behavioural Skills

| | |
|---|---|
| B Skills | Scale: sum of 3 items measuring relevant AIDS prevention behavioural skills. |

# CHAPTER V

## RESULTS

This chapter is divided into two sections. The first section presents the results of the tests of the hypotheses discussed in chapter II. The second summarizes the findings.

Descriptive statistics for all independent and dependent variables used in this study were calculated. Table 5.1 presents means and standard deviations for the variables and indices used in these analyses for all subjects. Pearson product-moment correlation matrices are found in the appendix.

### Tests of Hypotheses and Objectives

Hypothesis 1. Knowledge about HIV/AIDS and motivation to perform AIDS preventive behaviours will account for AIDS preventive behavioural skills.

Multiple regression analysis with pair-wise deletion of missing data was used to test the above hypothesis. Three measures of the knowledge component, three measures of the motivational component, and control variables (gender, age, church attendance, grade average, living arrangement, father's education, and mother's education) were regressed on behavioural skills (B.Skills).

When run for all subjects, the above regression explained 12% of the variance in B.Skills (see Table 5.2). All of the independent variables in this analysis were significant at the .o5 level, with the exception of the general information measure of the knowledge component. As for control variables, sex, age, and father's educational level were significant. The overall F-ratio for the

regression was 54.648 with a significance level of 0.000. Significance levels for all coefficients ranged from 0.000 to 0.024 for father's educational level variable.

In the overall analysis, examination of the standardized betas revealed that the intention measure of the motivational component was the most important independent variable (Beta = 0.258), with the attitude measure of the motivational component, the second most important (Beta = 0.103) and gender the third most important (Beta = 0.089). The risky measure of the knowledge component was the least important of the independent variables in this analysis, and had a Beta coefficient value of 0.039.

The tolerance of a variable is a commonly used measure of collinearity. The tolerance of a variable is defined as "1-Ri2, where Ri is the multiple correlation coefficient when the ith independent variable is predicted from the other independent variables" (SPSS for UNIX, 1993). The tolerance values for variables in the final regression equation ranged from 0.842 to 0.992, indicating that multicolinearity was not a problem.

In summary, two measures of the HIV/AIDS information and all measures of motivation emerged as significant predictors of behavioural skills to perform AIDS preventive behaviours. Thus, it can be concluded that the first hypothesis was, in principle, supported.

Hypothesis 2. Motivation to perform AIDS preventive behaviours, and AIDS preventive behavioural skills will predict AIDS preventive behaviours.

Multiple regression analysis was also used to test the second hypothesis of this study. This hypothesis was tested in two separate regression equations with two measures of the

dependent variable: use of condoms and number of sexual partners.

First, three measures of information, three measures of motivation, behavioural skills index, and control variables were regressed on frequency of condom use. A multiple regression analysis revealed that all measures except for measures of knowledge about HIV/AIDS made independent contributions to the prediction of use of condoms. The regression coefficients for attitude, behavioural skills, intentions, and subjective norms were 0.048, 0.021, -0.010, and 0.007, respectively ($p<0.05$ in each case), and the multiple correlation was 0.247 (see Table 5.3 ). Gender and age were the only two significant control variables that contributed to the prediction of use of condoms. The overall F-ratio for the regression was 34.866 with a significance level of 0.000. The resulting R-squared for the regression equation was 0.059. Significance levels for all coefficients ranged from 0.000 to 0.048 for subjective norms.

It is important to note that while all of the above mentioned variables reached significance at the 0.05 level, the percentage of explained variance in use of condoms was fairly low (6%).

The second regression analysis used to test this hypothesis involved the second measure of behaviour, number of sexual partners (Q19). As above, a total of seven independent variables and seven control variables were regressed on Q19. The overall F-ratio for the regression was 72.332 with a significance level of 0.000. The resulting R-squared of the analysis for all subjects was 0.118 (see Table 5.4).

It is important to note that a higher proportion of the variance in number of sexual partners was explained by

variables in the model and control variables as compared to use of condoms (6% compared to 11.8%). When examining Beta coefficients in the two regression equations, attitudes emerged as the most important predictor of use of condoms (Beta = 0.145) as compared to intentions as the most important predictor of number of sexual partners (Beta = -0.191). Attitudes ranked fifth among the seven significant predictors of number of sexual partners.

Again, as in the first hypothesis, multicollinearity was not a problem as the tolerance values ranged from 0.799 to 0.979, for both regression equations. In conclusion, the results of the above analyses support the hypothesis that measures of motivation and behavioural skills will explain AIDS preventive behaviours among participants. As predicted by the IMB model, the effect of HIV/AIDS information on AIDS preventive behaviours is mediated by behavioural skills (see Figures 3 &4).

Objective 3. To examine whether normative influences will be of greater importance in predicting frequency of condom use for males as compared to females.

To examine the above objective, the sample was divided into two groups, with all male subjects in one group and all female subjects in the second group. Multiple regression analysis was used to examine the importance of normative influences in predicting AIDS preventive behaviours for males as compared to females. For each group, three measures that comprise the knowledge component, three measures of the motivational component, behavioural skills index, and control variables were regressed on frequency of condom use.

The resulting R-squared for this regression equation for male subjects was 0.063. Subjective norms regarding use of condoms was significant at p=0.046 with a regression

coefficent of 0.012. Of the five significant independent variables in this equation, subjective norms emerged as the fifth most important predictor and had a Beta value of 0.054 (see Table 5.5).

Among females, only three of the fourteen variables which were entered into the regression equation were significant: attitudes, behavioural skills, and age. These variables were the only significant predictor variables and accounted for only 3% of the variance in condom use. In this analysis, normative influences was not a significant predictor of condom use (see Table 5.6).

In summary, the results of these analyses show that the relative importance of normative influences in predicting use of condoms appears to vary by gender. For males, subjective norms emerged as a significant predictor of condom use, whereas for females normative influences was not significant. Thus, as suggested by the literature, normative influences seem to be more important for males in predicting use of condoms as compared to females.

Objective 4. To determine whether there are any differences in how important behavioural skills are in predicting the number of sexual partners for males as compared to females.

To examine this objective the sample was also divided into two groups by gender. All components of the model and control variables were regressed on number of sexual partners. The results of the regression analyses for males were compared with females.

Examination of the standardized Betas revealed that, among males, the AIDS preventive intentions index was the most important predictor of the number of sexual partners (Beta = -0.163, $P<0.001$), with age, the second most important

(Beta = 0.131, $p<0.001$), and behavioural skills index the third most important (Beta -0.118, $p<0.001$). The overall regression equation was significant ($F(6,1321)=20.758$, $p<0.001$), with a resulting R-squared value of 0.082 (see Table 5.7).

Among females, the number of sexual partners was associated, in decreasing order of importance, with AIDS preventive intentions, age, behavioural skills, subjective norms, attitudes, church attendance, and information about riskiness of HIV/AIDS. Similar to males, intentions emerged as the most important predictor of number of sexual partners for females (Beta = -0.205, $p<0.001$). The above variables yielded a significant regression equation, $F(7,1880) = 41.674$, $p<0.001$) and explained 13.11% of the variance in number of sexual partners (see Table 5.8).

The results of these analyses show that the AIDS preventive behavioural skills index was equally important in predicting number of sexual partners for males and females. However, a higher percentage of the variance in the behaviour of females was explained by variables in the equation as compared to males.

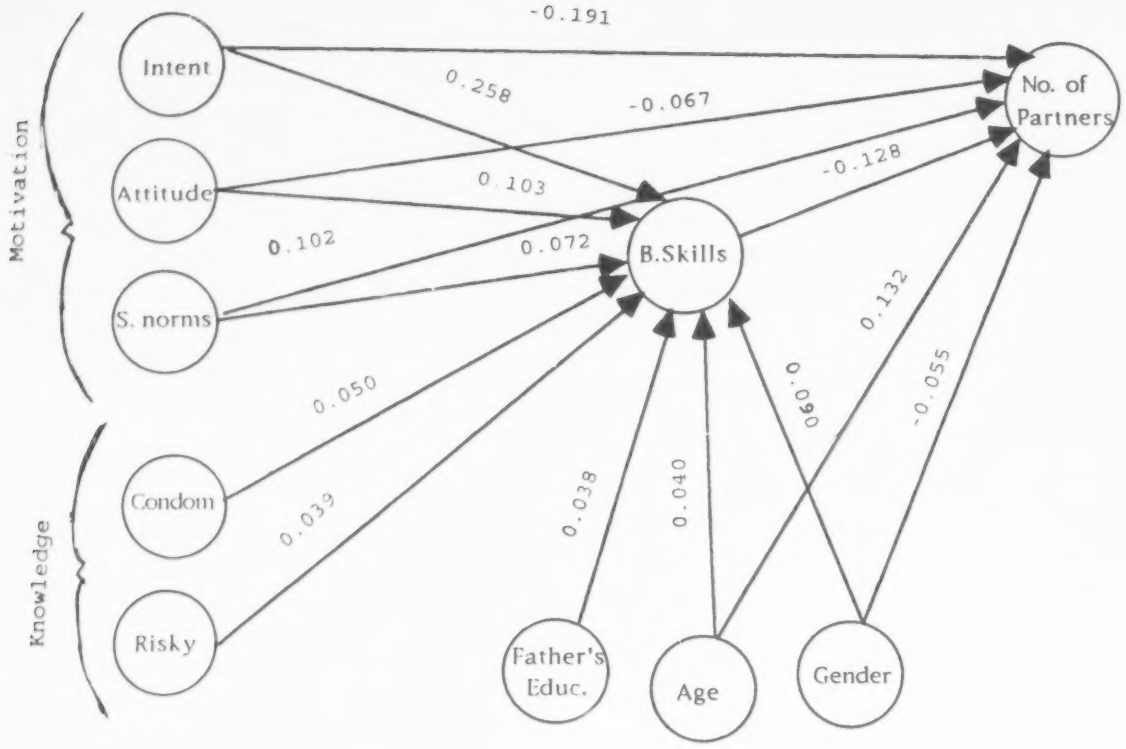


Fig. 3 Examination of the Model with Standardized Values (no. of sexual partners as dependent variable)

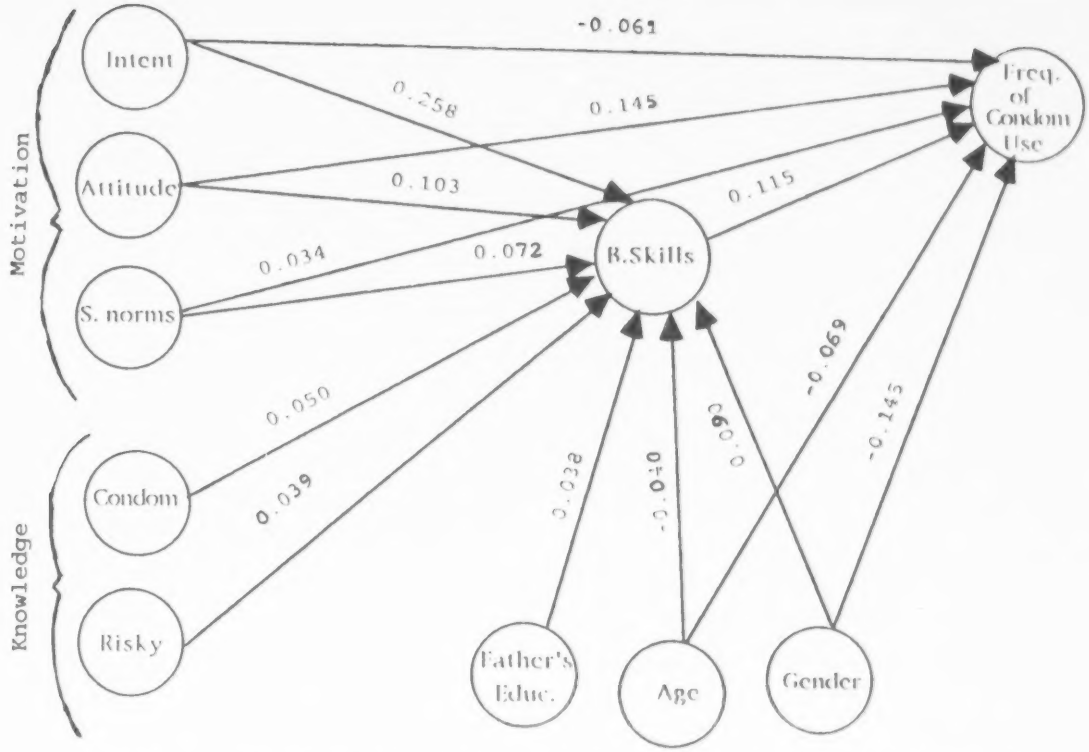


Fig. 4 Examination of the Model with Standardized Values (frequency of condom use as dependent variable)

## Summary of Results

This summary is arranged according to the IMB model presented in the Data Analysis section in Chapter IV. Those hypotheses which test the model (1 and 2) are summarized first. Next, objectives which examine the relative importance of subjective norms and behavioural skills in explaining AIDS preventive behaviours by gender are described.

In this study, it was hypothesized that measures of knowledge and motivation would predict AIDS preventive behavioural skills. For all the measures of the independent variables, with the exception of the general information measure of the knowledge component, results of the statistical analysis confirmed the research hypothesis. Two measures of knowledge (knowledge about AIDS risk and condoms), all measures of motivation (intentions, subjective norms and attitudes) and three control variables (gender, age and father's education) explained up to 12% of the variance in AIDS preventive behavioural skills.

According to the IMB model, motivation and behavioural skills will explain AIDS preventive behaviours. For the two measures of AIDS preventive behaviours (frequency of condom use and number of sexual partners), results of the analysis in this study support the contention that motivation and behavioural skills do explain AIDS preventive behaviour. Measures of motivation, the behavioural skills index and two control variables (age and gender) contributed significantly to the prediction of use of condoms and explained up to 6 % of the variance in that variable. Similarly, the same variables contributed significantly to the prediction of the number of sexual partners. A higher proportion of the variance in number of sexual partners was explained by the

above variables as compared to frequency of condom use (6% compared to 11.8 %).

Objective three examined whether normative influences were of greater importance in predicting the frequency of condom use for males as compared to females. For males, only five of the fourteen variables regressed on frequency of condom use were significant. Subjective norms ranked fifth. As for females, only three of the fourteen variables were significant: attitudes, behavioural skills and age. "Normative influences" was not a significant predictor of condom use. Normative influences seem to vary by gender, with subjective norms emerging as a significant predictor of condom use for males but not for females.

The fourth and final objective in this study examined the relative importance of behavioural skills in explaining the number of sexual partners by gender. For males, six of the fourteen variables emerged as significant predictors of the number of sexual partners, with the behavioural skills index ranking third in importance (Beta = -0.118). Similarly, for females behavioural skills ranked third in importance (Beta = -0.153). However, a higher percentage of the variance in the behaviour of females was explained by variables in the equation as compared to males (13.11% versus 8.2%).

Table 5.1

Means and Standard Deviations for Variables and Indices Used

| Variable/Index | Valid N | Mean | S.D. |
|---|---|---|---|
| Q22BB | 3780 | 0.16 | 0.36 |
| B.Skills Index | 5324 | 12.35 | 1.91 |
| General Index | 5425 | 1.35 | 0.97 |
| Condom Index | 5433 | 1.06 | 0.75 |
| Risky Index | 5439 | 4.78 | 0.54 |
| Attitude | 5298 | 3.01 | 1.01 |
| S.Norms Index | 5399 | 6.07 | 1.87 |
| Intent Index | 5334 | 7.21 | 2.20 |

Table 5.2

Results of the Regression Analyses for Behavioural skills (Bskills) for All Subjects (N= 5427)

| Variable | B | Beta | R-SQD | T-Ratio | Prob. |
|---|---|---|---|---|---|
| Intent | 0.218 | 0.258 | 0.085 | 14.300 | 0.000 |
| Attitude | 0.182 | 0.103 | 0.099 | 6.117 | 0.000 |
| Sex | 0.350 | 0.090 | 0.106 | 4.948 | 0.000 |
| S.Norms | 0.075 | 0.072 | 0.111 | 4.264 | 0.000 |
| Condom | 0.130 | 0.050 | 0.114 | 2.934 | 0.003 |
| Age | -0.062 | -0.040 | 0.115 | -2.417 | 0.016 |
| Risky | 0.158 | 0.039 | 0.117 | 2.310 | 0.021 |
| Father's Education | 0.024 | 0.047 | 0.038 | 0.118 | 2.263 |

R-SQD=0.12 F(Eqn)=54.648 Sig.=0.000

Table 5.3

Results of the Regression Analysis for frequency of condom use (Q22BB)
for All Subjects (N= 3780)

| Variable | B | Beta | R-SQD | T-Ratio | Prob. |
|---|---|---|---|---|---|
| Attitude | 0.048 | 0.145 | 0.021 | 8.298 | 0.000 |
| Sex | -0.106 | -0.145 | 0.041 | -7.766 | 0.000 |
| B.Skills | 0.021 | 0.115 | 0.051 | 6.336 | 0.000 |
| Age | -0.198 | -0.069 | 0.056 | -4.019 | 0.000 |
| Intent | -0.010 | -0.061 | 0.059 | -3.185 | 0.001 |
| S.Norms | 0.007 | 0.034 | 0.060 | 1.980 | 0.048 |

R-SQD=0.060 F(Eqn)=34.866 Sig.=0.000

Table 5.4

Results of the Regression Analyses for Number of Sexual Partners (Q19)
for All Subjects (N=5398)

| Variable | B | Beta | R-SQD | T-Ratio | Prob. |
|---|---|---|---|---|---|
| Intent | -0.566 | -0.191 | 0.063 | -10.313 | 0.000 |
| Age | 0.709 | 0.132 | 0.086 | 7.900 | 0.000 |
| Bskills | -0.448 | -0.128 | 0.102 | -7.275 | 0.000 |
| S.Norms | 0.373 | 0.102 | 0.111 | 6.078 | 0.000 |
| Attitude | -0.413 | -0.067 | 0.115 | -3.948 | 0.000 |
| Sex | -0.754 | -0.055 | 0.118 | -3.035 | 0.002 |

R-SQD=0.118 F(Eqn)=72.332 Sig.=0.000

Table 5.5

Results of the Regression Analyses on Use of Condoms (Q22BB) for Males (N= 2218)

| Variable | B | Beta | R-SQD | T-Ratio | Prob. |
|---|---|---|---|---|---|
| Attitude | 0.064 | 0.176 | 0.038 | 6.495 | 0.000 |
| B.Skills | 0.027 | 0.132 | 0.050 | 4.700 | 0.000 |
| Intent | -0.016 | -0.089 | 0.058 | -3.176 | 0.001 |
| Age | -0.020 | -0.064 | 0.061 | -2.396 | 0.017 |
| S.Norms | 0.012 | 0.054 | 0.063 | 1.995 | 0.046 |

R-SQD=0.063 F(Eqn)=18.969 Sig.=0.000

Table 5.6

Results of the Regression Analyses on Use of Condoms (Q22BB) for Females (N=3256).

| Variable | B | Beta | R-SQD | T-Ratio | Prob. |
|---|---|---|---|---|---|
| Attitude | 0.036 | 0.121 | 0.017 | 5.333 | 0.000 |
| B.Skills | 0.016 | 0.092 | 0.025 | 4.047 | 0.000 |
| Age | -0.018 | -0.071 | 0.029 | -3.111 | 0.002 |

R-SQD=0.030 F(Eqn)=19.960 Sig.=0.000

Table 5.7

Results of the Regression Analysis on Number of Sexual Partners (Q19) for Males (N= 2218)

| Variable | B | Beta | R-SQD | T-Ratio | Prob. |
|---|---|---|---|---|---|
| Intent | -0.637 | -0.163 | 0.036 | -5.916 | 0.000 |
| Age | 0.883 | 0.131 | 0.056 | 4.922 | 0.000 |
| Bskills | -0.526 | -0.118 | 0.068 | -4.243 | 0.000 |
| Snorms | 0.534 | 0.106 | 0.077 | 3.990 | 0.000 |
| Attitude | -0.508 | -0.064 | 0.080 | -2.400 | 0.017 |
| Condom | -0.640 | -0.053 | 0.082 | -2.018 | 0.044 |

R-SQD= 0.082 F(Eqn)= 20.758 Sig.F= 0.000

Table 5.8

Results of the Regression Analyses on Number of Sexual Partners (Q19) for Females (N=3256)

| Variable | B | Beta | R-SQD | T-Ratio | Prob. |
|---|---|---|---|---|---|
| Intent | -0.472 | -0.205 | 0.059 | 9.150 | 0.000 |
| Age | 0.558 | 0.147 | 0.087 | 6.771 | 0.000 |
| Bskills | -0.386 | -0.153 | 0.107 | -6.891 | 0.000 |
| Snorms | 0.277 | 0.114 | 0.119 | 5.217 | 0.000 |
| Attitude | -0.313 | -0.072 | 0.124 | -3.314 | 0.000 |
| Church | -0.314 | -0.066 | 0.128 | -3.024 | 0.002 |
| Risky | 0.670 | 0.064 | 0.131 | 2.967 | 0.003 |

R-SQD= 0.131 F(Eqn)= 41.674 Sig.F= 0.000

# CHAPTER VI

## DISCUSSION AND CONCLUSIONS

This chapter is divided into three parts. The first part discusses the results presented in chapter V and includes interpretations of these findings. The second part includes conclusions and a summary of all the findings as they are related to other studies in the literature. The final section is a discussion of practical implications and suggestions for future research in this area

### Interpretation of the Findings

This section is a discussion of the findings presented in Chapter V. Those findings that relate to an examination of the plausibility of using the IMB model to predict and explain participants' AIDS preventive behavioural skills and behaviours will be discussed first (hypotheses 1 and 2). Next those findings that relate to the relative importance of model components (for all subjects and by gender) will be presented. Finally, the implications of these findings for prevention programs and future research will be discussed.

### Findings Related to the IMB Model

The major purpose of this study was to explore the possibility of using the IMB model to predict and explain AIDS preventive behaviours among young Canadian adults. With the behavioural skills as the intervening variable, the first part of the model will with behavioural skills as the dependent variable will be discussed, followed by discussion of the predictors of use of condoms and number of sexual partners.

Generally, the results of the present study lend good support to Fisher and Fisher's IMB model and suggest that it is useful in predicting and explaining AIDS preventive behaviours among the participants. With the behavioural skills being the intervening variable in this model, the relationship between measures of motivation and measures of information explained approximately 12% of the variance in behavioural skills. As well, the relationship between measures of motivation and behavioural skills explained approximately 6% and 12 % of the variance in use of condoms and number of sexual partners, respectively.

It is interesting to note the difference in percent of explained variance for behavioural skills and the frequency of condom use (12% versus 6%). A possible explanation for this difference relates to the nature of the behaviour being studied. Asking respondents to state their AIDS preventive behavioural skills may allow time for consideration of AIDS preventive intentions, subjective norms, attitudes, and information. The actual decision to use condoms during sexual performance may or may not be made with consideration for these factors. The participants' perceptions of the skills needed to perform AIDS preventive behaviours could be very different from the behaviour they exhibit when the situation arises.

According to Fisher and Fisher's study (1992) and based on Fishbein and Ajzen's theory of reasoned action (Fishbein & Ajzen, 1975), variables that are external to the IMB model will be reflected in the model components attitudes and subjective norms. In the context of this study, situational factors such as physical location, , presence of significant others, perceived vulnerability to HIV, and thoughts and feelings at the time the decision to perform AIDS preventive behaviours were made should have been reflected in the model;

however, the influence of these factors was not captured due to the way some of the model components were measured.

To illustrate, due to the nature of this study, normative influences measured general societal norms as opposed to specific normative groups such as peers, parents, and siblings. Also, the attitude measure of the motivational component was restricted to feelings toward use of condoms; respondents' attitudes toward promiscuity and monogamous relationships were not measured.

## Differences in Relative Importance of Predictors and AIDS Preventive Behaviours for All Subjects and by Gender

Differences in the relative importance of the independent variables in explaining AIDS preventive behaviours for all subjects and by gender were also examined in this study. For a number of analyses in this area, the sample was divided into two groups by gender.

Before describing the results of objectives 3 and 4 which examined the relative importance of the model components for males and females, the relative importance of the model components in explaining AIDS preventive behavioural skills and behaviours for all subjects will be presented and discussed. Items which comprised the model component "motivation" will be presented first, followed by "information" and finally "behavioural skills".

The intentions index was comprised of two items which measured participants' intentions of having casual sex in the future and staying in a monogamous relationship for the rest of their lives. Intentions emerged as the best predictor of AIDS preventive behavioural skills. The behavioural skills index was comprised of three items which measured whether

respondents would talk to their partners about their past sexual experiences, would tell their partners if they thought they had AIDS, and would discuss the use of condoms during sexual performance. Generally, those participants who intended to stay in a monogamous relationship and have no casual sex in the future possessed the necessary AIDS preventive behavioural skills.

The intentions index also emerged as the best predictor of the number of sexual partners. Among the six significant predictors of number of sexual partners, "intentions" emerged as the most important variable. In general, those who intended to stay in a monogamous relationship and had no intentions of casual sex in the future had fewer sexual partners.

When predicting frequency of condom use, intentions ranked fifth among the six significant predictors. One reason for this relatively low level of importance may be related to issues of measurement. As noted in the section on measurement issues, a low correlation between the variable and the behaviour being measured is often found when there is lack of congruence between the items measuring the variable and those measuring the behaviour. If more specific measures of intentions toward the performed behaviour (use of condoms) had been used, the correlation might have been higher, and the relative importance of intentions in predicting frequency of condom use might have been greater.

It is interesting to note that the intentions index was negatively correlated with the frequency of condom use. A possible interpretation of this finding is that those who intended to stay in a monogamous relationship used condoms less frequently. Those subjects probably felt that they knew their partners well enough that there was a lesser need for using condoms during sexual performance.

The "attitude" component was assessed as a single item variable which measured the respondents' feelings toward the use of condoms. Attitudes toward use of condoms ranked second in importance among the eight significant predictors of behavioural skills. In general, those participants who had positive attitudes toward the use of condoms would talk to their partners about their past sexual experiences, would tell their partners if they thought they had AIDS, and would discuss the use of condoms during sexual performance.

As expected in this research, the attitude variable was a significant predictor of AIDS preventive behaviours for all subjects. Attitudes varied in relative importance. For use of condoms, attitudes emerged as the most important predictor of this behaviour. Generally, those who believed that use of condoms decreases sexual pleasure used condoms less frequently.

While attitudes was a significant predictor of the number of sexual partners, it was among the least important predictors of this specific behaviour. As previously mentioned, the lack of congruence in measurement of attitudes and number of sexual partners may have contributed to the relatively poor performance of this variable in predicting this specific behaviour.

A rather interesting finding is that attitudes were negatively related to the number of sexual partners. Those who believed that condoms decreases sexual pleasure had fewer sexual partners. One possible explanation is that the threat of contracting AIDS coupled with the negative attitudes toward the use of condoms may have motivated participants to be monogamous and have fewer sexual partners.

Another possible explanation for this finding relates to measurement of this variable. Due to the lack of congruence

between feelings toward use of condoms and number of sexual partners, it is possible that attitudes toward use of condoms are not especially important in deciding on the number of sexual partners.

As the third measure of the motivational component, the subjective norms index was comprised of two items which assessed whether participants felt embarrassed to buy condoms and whether they were thought of as promiscuous if they carried condoms. The subjective norms index was a significant predictor of behavioural skills and ranked fourth among the eight significant predictors. As expected, the direction of the relationship between the two variables was positive. Those subjects who felt embarrassed to buy condoms and carry condoms in public, were less likely to have AIDS preventive behavioural skills.

As suggested by the IMB model, the subjective norms index was a significant predictor of use of condoms and number of sexual partners for all subjects. Depending on the behaviour explained (frequency of condom use or number of sexual partners), the subjective norms index varied in importance. It emerged as the least important predictor of condom use and ranked fourth among six predictors of the number of sexual partners. This is a rather unexpected finding, especially that there is high correspondence in the level of specificity of items used to measure the subjective norms index and behaviour.

As expected, the relationship between subjective norms and frequency of condom use was positive. Those subjects who felt embarrassed to buy condoms and did not carry condoms in public were less likely to use condoms. Groups can exert considerable pressure on individuals to avoid AIDS preventive behaviours, or to use them. Thus, if norms in the adolescent

community could be changed into proprevention social norms, HIV/AIDS high risk behaviours will probably be reduced.

Similarly, the relationship between subjective norms and the number of sexual partners was in the same direction. Those subjects who felt embarrassed to buy condoms and did not carry condoms in public were more likely to have a high number of sexual partners. Those subjects probably felt pressured by the group to practice unsafe sex.

AIDS preventive information were assessed using three independent measures: general AIDS-related information, knowledge regarding HIV/AIDS risk, and condom-related information. According to the IMB model, HIV/AIDS information affect AIDS preventive behaviour indirectly by acting through the behavioural skills component. AIDS preventive information affect AIDS preventive behavioural skills which in turn affect behaviour (Fisher & Fisher, 1992; Fisher et al., 1991; Fisher & Fisher, 1993).

In accordance with the IMB model, results in this study showed that the two measures of information (information regarding AIDS risk and condoms) emerged as significant predictors of behavioural skills. As expected, none of the measures of information contributed to the prediction of AIDS preventive behaviours. Those subjects who were highly knowledgeable were more likely to have AIDS preventive skills.

The behavioural skills component of the IMB model has mostly a direct effect on AIDS preventive behaviour irrespective of the presence of adequate HIV/AIDS information or motivation to perform AIDS preventive behaviours (Fisher et al., 1991). The behavioural skills index in this study was comprised of three items which measured whether respondents would talk to their partners about their past

sexual experiences, would tell their partners if they thought they had AIDS, and would discuss the use of condoms during sexual performance.

When the relative importance of the variables included to explain AIDS preventive behaviours (use of condoms and number of sexual partners) were examined, "behavioural skills" ranked third in importance. As expected, the direction of the relationship between behavioural skills and use of condoms was positive. Those who had AIDS preventive skills were more likely to use condoms. Also, as expected the behavioural skills index was negatively correlated with the number of sexual partners. Those who had the adequate skills to discuss AIDS prevention measures and safer sex practices, were more likely to have fewer number of partners.

Gender and age were the two main control variables which emerged as significant predictors of AIDS preventive behaviours. Gender was significantly and negatively related to the frequency of condom use. Females seem to be using condoms less frequently than males. This is probably due to the fact that the society still assumes that it is the male's role to use condoms. Younger participants were more likely to use condoms as compared to older subjects. Also, in general, females and younger participants were more likely to have few number of sexual partners. For behavioural skills, females and younger participants appeared to possess more AIDS preventive skills. Those participants, as a group, may be more comfortable initiating questions about sexual behaviour.

The last two objectives in this study examined the relative importance of subjective norms and behavioural skills in explaining AIDS preventive behaviours by gender. . There were differences between males and females with regard to the relative importance of normative influences. While

normative influences emerged as a significant predictor of the frequency of condom use for males, it was not a significant predictor for females. Behavioural skills were equally important for males and females in predicting the number of sexual partners.

## Study Conclusions

In essence, the present study supports the IMB model which proposes that AIDS-related information and motivation to perform AIDS preventive behaviours work through the behavioural skills component in order to influence behaviour. Two measures of knowledge (knowledge about AIDS risk and condoms), all measures of motivation (intentions, subjective norms and attitudes) and three control variables (gender, age and father's education) explained up to 12% of the variance in AIDS preventive behavioural skills. Measures of motivation, the behavioural skills index and two control variables (age and gender) contributed significantly to the prediction of use of condoms and explained up to 6 % of the variance in that variable. Similarly, the same variables explained up to 11.8% of the variance in number of sexual partners.

The results of this study are comparable with the results of Fisher's et al. (1991) study of university students and gay males. In the model for university students, the information and motivation constructs accounted for 10% of the variance in the behavioural skills construct. Behavioural skills along with the direct effects of information and motivation explained 10% of the variance in AIDS preventive behaviour at Time 1 measurement (initial levels of information, motivation, behavioural skills, and behaviour). At Time 2 (2 months later), 28% of the variance in AIDS preventive behaviour was explained by the initially measured components.

It is interesting to note that the percent of explained variance in the behaviour of university students was somewhat low as compared to the percent of explained variance in the behaviour of gay males (10% as compared to 35%). According to the authors, this is due to the high degree of congruence and specificity between items used to measure the predictors of AIDS preventive behaviour and measures of the behaviour of gay males.

According to the IMB model, the knowledge component has an indirect effect on AIDS related behaviours. Results of this study have shown that the knowledge component of the model works through behavioural skills in predicting AIDS preventive behaviours. These finding have support from some studies in the literature which failed to detect a knowledge preventive behaviour relationship (Baldwin & Baldwin, 1988; DiClemente, 1990). Researchers in these studies concur that knowledge seems to be necessary but not sufficient in modifying AIDS preventive behaviours.

There is empirical evidence in the literature for a strong relationship between intention and behaviour. A number of factors, however, have been shown to influence this relationship, such as: time between measurement of intention and observation of the behaviour; salience of beliefs regarding a behaviour's positive or negative features; exposure to new information; the individual's ability to perform the behaviour; and issues related to measurement such as correspondence between specificity of items used to measure intention and the behavioural criterion (Fishbein & Ajzen, 1975), as well as the extent to which the measured intention represents the respondent's true intention. Thus, taking these variables into consideration, the intention to perform a behaviour would be a good predictor of the actual behaviour.

Results of the analysis in this study support the contention that the motivational component explains AIDS preventive behaviours. The intentions index was negatively correlated with the two measures of AIDS preventive behaviours (frequency of condom use and number of sexual partners). In general, those who intended to stay in a monogamous relationship and had no intentions of casual sex in the future had fewer sexual partners.

The negative correlation between the intentions index and the frequency of condom use is rather interesting and deserves some explanation. This finding is supported by implicit personality theories which imply the perception that a partner who one knows is considered not risky (Williams, Kimble, Covell, Weiss, Newton, and Fisher, 1991). According to the study conducted by Williams et al. (1991), college students in their sample reported that it was important to use condoms for one night stands or when they felt they did not know their sexual partner well enough. However, once they knew their partners, they started to discuss other means of birth control. Thus, by just feeling that they "know their partners" without any reliable knowledge of that person's HIV status, these subjects are exposing themselves to potentially dangerous situations.

Similarly, intentions emerged as the best predictor of AIDS preventive behavioural skills. Generally, those participants who intended to stay in a monogamous relationship and have no casual sex in the future possessed the necessary AIDS preventive behavioural skills.

In this study, the attitude variable was a significant predictor of AIDS preventive behaviours for all subjects. This finding is in accordance with other studies in the literature. In studies that focused on use of condoms, it

was found that beliefs about condom use were associated with actual use (Hingson et al., 1990; Siegal et al. 1991). Siegal et al. (1991) reported that adolescents' beliefs in effectiveness of condoms in preventing HIV transmission correlated positively with reported condom use. Individuals who believed that condoms were effective in preventing AIDS perfectly or pretty well during sexual intercourse were more likely to report increased condom use than individuals who believed that condoms work a little.

Similar results were reported by other studies which showed that people's attitudes toward AIDS prevention consistently predicted their practices of preventive behaviours (Fisher & Fisher, 1991; Jemmott & Jemmott, 1990; Pleck, Sonenstein, & Ku, 1990; Ross, 1988).

As the third measure of the motivational component, the subjective norms index emerged as a significant predictor of behavioural skills. As expected, the direction of the relationship between the two variables was positive. This finding is in accordance with previous studies in the literature. For instance, in a study conducted by Fisher & Misovich (1990), students in their sample reported that it was easier for them to have unprotected sex than to discuss STD prevention. Participants feared rejection by their sexual partner if they failed to conform to group norms and discussed safer practices.

Similarly, normative influences in this study emerged as a good predictor of AIDS preventive behaviours. Studies in the literature have shown that social norms played a powerful role in modifying HIV/AIDS risk behaviours (Catania et al., 1989; DiClemente, 1990; DiClemente & J.D. Fisher, 1991; Fisher, 1988; J.D. Fisher & Misovich, 1990; Jemmott & Jemmott, 1991). For example, it is normative or acceptable for adolescents to have a feeling of low vulnerability; thus,

it is expected that those subjects will be involved with a lot of partners.

Studies in the literature found that normative influences supporting condom use were among the strong predictors of condom use among youth. Although beliefs about condom use were associated with actual use (Hingson, Strunin, & Berlin, 1990), perceived expectations of peers and sexual partners regarding contraception were more important than parental norms in explaining intentions to use contraception . In these studies, adolescents had a perception of their peers' attitudes different than what they really were. Consequences of this perception may produce less condom use because it is not perceived as cool by their peers, when the peers may personally support condom use.

Results of this study have also shown that the relative importance of normative influences in predicting use of condoms varies by gender. Subjective norms emerged as a significant predictor of condom use for males but not for females. This finding has support from studies in the literature. According to Fisher (1988) norms that shape sex and gender roles may have an important effect on sexual behaviour. For instance, showing concern towards AIDS risk behaviours may interfere with the macho gender roles for males. Female gender roles, as well, may conflict with the assertive behaviours required to discuss sexual history and use of condoms with their partners.

## Practical Implications and Suggestions for Future Research

According to Fisher and Fisher (1993), the IMB model may be used as a tool for planning, implementing and evaluating AIDS education programs. At the planning stage, elicitation research is conducted to determine the population's preintervention levels of AIDS risk preventive information, motivation, behavioural skills, and risky and preventive behaviour. At the second stage, AIDS preventive interventions are implemented in order to facilitate the acquisition of AIDS preventive information, motivation, behavioural skills and behaviour. Finally, evaluation research is conducted in order to determine the short term and long term effects of the intervention on the population's information, motivation, behavioural skills, and behaviour.

The study findings have several implications for AIDS educational preventive programs. Even though research has reported that AIDS preventive knowledge has minimal effect on behaviour, it is still considered necessary for the enactment of AIDS preventive behaviour. Young people draw on their AIDS preventive knowledge in order to acquire AIDS preventive behavioural skills that will ultimately affect their behaviour. Information gaps related to protection and transmission can be a barrier to the enactment of AIDS preventive behaviour.

The first prerequisite step involved in any AIDS education program is addressing the informational needs and eliminating misconceptions of the target population. Once programs are implemented, AIDS preventive knowledge levels should be closely monitored so that the programs continue to respond to the changing needs of the population. Educators should continuously address any new AIDS preventive information into AIDS education programs so that they continue to be effective in promoting AIDS preventive

behaviours (King & Wright, 1993). Education still remains as the most effective way to reduce the spread of the HIV infection especially of those in high-risk groups. Increased attention must be directed at young people, since they are more sexually active than the population at large and therefore are at greater risk.

To be effective, AIDS prevention programs should identify the social factors that support behavioural change among young people. Moreover, these programs should attempt to work on the various and complex social forces that motivate and shape the young adults' behaviours of interest. Factors such as AIDS preventive attitudes and normative influences play an important role in young people's decisions about health risk behaviours (Brown, Nassau, & Barone, 1990; Jones et al., 1991).

According to this study, attitudes towards condoms were significant predictors of condom use and number of sexual partners. Barriers against AIDS preventive attitudes must be eliminated so that young people will be adequately motivated to apply and practice their AIDS preventive information. Researchers concur that positive attitudes toward safer sexual practices and the feelings of responsibility and respect towards the self and others motivate individuals to acquire AIDS preventive behaviours (Hingson et al., 1990; O'Leary et al., 1992). Positive attitudes toward condoms are associated with higher levels of condom use, whereas negative attitudes are associated with low levels of condom use.

One of the most important attitudinal barriers to AIDS risk reduction is the feeling of invulnerability that exists among young people. Young people feel that they are at less risk than others and thus are less willing to adopt AIDS preventive behaviours. College students reported that one of the reasons for not using condoms was that they were so

passionately involved in their relationships that they would forget about using condoms during sexual intercourse. Other reported barriers toward condom use included decrease in sensation and sexual pleasure, rubber smell of condoms, and a general loss of spontaneity once condoms were used (Williams et al., 1991).

According to implicit personality theories, young people usually do not use safer sexual practices with partners who they know, even though they might be completely unaware of their sexual history. Young people tend to trust their sexual partners based on the way they look (Williams et al., 1991). In general, couples usually tend to use condoms in the first stages of the relationship and look for other means of contraception once the relationship has been established (Maticka-Tyndale, 1991).

Educators should involve students in the planning and implementation phases of AIDS preventive programs. Education programs should try to promote positive attitudes toward safer sexual practices by allowing the students to discuss the issue thoroughly. Maticka-Tyndale (1991) points out that the "foot in the door effect" is a helpful concept for AIDS education programs. Once students have used condoms in the early stage they might use it again later in their relationship. Even though condoms are usually used in the beginning of a relationship, educators can still invest in this area and promote the use of condoms later in the relationship and in other relationships as well.

Overall, the results of this study showed that norms that are prevalent in the society are important in predicting AIDS preventive behaviours. This finding suggests that prevention programs should emphasize skills which help college students to resist peer pressure as well as techniques that make youth aware of the social pressures to

perform AIDS risk behaviours. Prevention programs that provide a chance for participants to identify these kinds of social influences in their own lives, and provide an opportunity to resist these influences are important.

In general, young people are affected by peer groups more than their parents. Peer groups may promote values and beliefs which could be risky and health endangering. Thus, AIDS preventive intervention programs must promote proprevention norms among youth by involving them in all stages of the program.

Particular normative groups in the community can act as possible barriers against the adoption of AIDS preventive behaviours. For example, conservative religious groups may oppose some of the elements of AIDS intervention programs. On the other hand, these same groups can promote particular preventive behaviours such as abstinence. These groups can exert a significant pressure on young people depending on how important young people view them and how much they are willing to comply with them. The effect of promoting abstinence can be negative since it adds extra pressure on young people and increases their feelings of guilt without taking into consideration youth sexuality (King & Wright, 1993). Similarly, Maticka-Tyndale (1991) reported that Canadian youth were sexually active at an early age and, thus, abstinence was an unrealistic goal for most AIDS education programs.

Results of this study suggest that while the attitudes and normative influences are both important determinants of AIDS preventive behaviours, other factors must also be considered. One of these might be the way in which young adults decide to use condoms and be involved in monogamous relationships. If the decision is most frequently made spontaneously, then prevention programs that include decision

making skills might be helpful in decreasing AIDS risk behaviours.

According to Fisher and Fisher (1993), an individual passes through a series of steps in order for AIDS preventive behavioural skills to be enacted. Starting with the acknowledgment of their own sexuality, individuals must be able to acquire AIDS preventive information about transmission and risk. Then, they must be able to plan preventive actions and have the adequate skills to discuss safer sexual practices with their partners before and during sexual encounters. Finally, individuals must have the knowledge and skills to exit situations where safer sexual practices are not used.

Alcohol impairment is considered one of the important reasons given by college students for not using condoms. Students report that they often become sexually involved when they are drunk that they forget to use condoms. Programs in schools, colleges, and universities should be developed for young adults so that they learn assertiveness and negotiation skills which are needed most during sexual encounters. These skills are specifically needed when young people are under the influence of alcohol and other drug use (King & Wright, 1993).

The last two objectives in this study examined the relative importance of subjective norms by gender. While there are differences between males and females with regard to the relative importance of normative influences, those factors that are most important in the decision to perform AIDS preventive behaviours are similar for all youth. Based on the findings in this study, coeducational programs could adequately meet the needs of both males and females. For example, females could learn to be more assertive so that they can request condom use and refuse sex if condoms are not

used. Males, on the other hand, could examine the subjective norms that exist about male sexuality.

The primary purpose of this study was to examine the plausibility of using Fisher and Fisher's IMB model to predict and explain AIDS preventive behaviours among college students. As well, as discussed earlier in this section, the IMB model is an effective tool for designing programs. As noted above, the model components were not measured according to model specifications, but in most cases the items that were used to measure the components very closely approximated the model components. Given the limitations of this secondary data analysis, the results of this study suggest that the knowledge, motivation and behavioural skills components were appropriate for predicting and explaining AIDS preventive behaviours in college/university students. The study findings suggest that additional work in defining, operationalizing, and refining the model components is needed.

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APPENDICES

# APPENDIX A

# FACTOR LOADINGS FOR ITEMS COMPRISING COMPONENTS OF THE IMB MODEL

Varimax Factor Loadings for Items of AIDS Preventive Knowledge

| | Factor 1 | Factor 2 | Factor 3 |
|---|---|---|---|
| Q43 | 0.601 | | |
| Q52 | 0.567 | | |
| Q48 | 0.535 | | |
| Q31 | 0.432 | | |
| Q45 | 0.420 | | |
| Q29 | | 0.705 | |
| Q28 | | 0.572 | |
| Q50 | | 0.570 | |
| Q36 | | | 0.607 |
| Q44 | | | 0.474 |

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Varimax Factor Loadings for items of Motivation and Behavioural Skills

| | Factor 1 | Factor 2 | Factor 3 | Factor 4 |
|---|---|---|---|---|
| Q100 | 0.841 | | | |
| Q129 | 0.757 | | | |
| Q109 | 0.694 | | | |
| Q77 | | 0.730 | | |
| Q79 | | 0.636 | | |
| Q97 | | | 0.817 | |
| Q68 | | | 0.741 | |
| Q135 | | | | 0.860 |
| Q116 | | 0.525 | | |

# APPENDIX B
# CORRELATION COEFFICIENTS

## CORRELATION COEFFICIENTS

| | Condom | | Risky | | General | | S.Norms | | Attit. | | Intent. | | B.Skills | | Know. | | Motivat | | Behav. | | Q.19 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Condom | 1.0000 | | 0.1450 | ** | 0.1605 | ** | 0.1290 | ** | 0.0100 | | -0.0785 | ** | 0.0574 | ** | 0.6514 | ** | 0.0255 | | 0.0346 | * | 0.0448 | ** |
| Risky | 0.1450 | ** | 1.0000 | | 0.1441 | ** | 0.0135 | | 0.0199 | | 0.0125 | | 0.0537 | ** | 0.5183 | ** | 0.0232 | | -0.0012 | | 0.0059 | |
| General | 0.1605 | ** | 0.1441 | ** | 1.0000 | | 0.0112 | | -0.0275 | * | -0.0099 | | 0.0214 | | 0.7704 | ** | -0.0101 | | 0.0077 | | -0.0119 | |
| S.Norms | 0.1290 | ** | 0.0135 | | 0.0112 | | 1.0000 | | 0.0985 | ** | -0.0778 | ** | 0.0719 | ** | 0.0761 | ** | 0.5866 | ** | 0.0641 | ** | 0.1472 | ** |
| Attitude | 0.1000 | | 0.0199 | | -0.0275 | * | 0.0985 | ** | 1.0000 | | 0.0810 | ** | 0.1451 | ** | -0.0047 | | 0.4475 | ** | 0.1533 | ** | -0.1317 | ** |
| Intent. | -0.0786 | ** | 0.0125 | | -0.0099 | | -0.0778 | ** | 0.0310 | ** | 1.0000 | | 0.2641 | ** | -0.0418 | ** | 0.6954 | ** | 0.0758 | ** | -0.2258 | ** |
| B.Skills | 0.0574 | ** | 0.0537 | ** | 0.0214 | | 0.0719 | ** | 0.1451 | ** | 0.2541 | ** | 1.0000 | | 0.0508 | ** | 0.2809 | ** | 0.0985 | ** | -0.1850 | ** |
| Knowledge | 0.6514 | ** | 0.5183 | ** | 0.7704 | ** | 0.0761 | ** | -0.0047 | | -0.0418 | ** | 0.0608 | ** | 1.0000 | | 0.0142 | | 0.0215 | | 0.0158 | |
| Motivat. | 0.0255 | | 0.0232 | | -0.0101 | | 0.5866 | ** | 0.4475 | ** | 0.6954 | ** | 0.2809 | ** | 0.0142 | | 1.0000 | | 0.0358 | * | -0.1154 | ** |
| Behaviour | 0.0346 | * | -0.0012 | | 0.0077 | | 0.0641 | ** | 0.1533 | ** | -0.0758 | ** | 0.0983 | ** | 0.0215 | | 0.0358 | * | 1.0000 | | 0.0168 | |
| Q.19 | 0.0443 | ** | 0.0059 | | -0.0119 | | 0.1472 | ** | -0.1317 | ** | -0.2258 | ** | -0.1850 | ** | 0.0158 | | -0.1154 | ** | 0.0168 | | 1.0000 | |
| | | | | | | | | | | | | | | | | | | | | | | |

*  Sig. L.E. 0.05
**  Sig. L.E. o.o1 (2-tailed)
" "  Printed if a coefficient cannot be computed

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**Instructions to Students**

This questionnaire asks about what you know and how you feel about AIDS and other sexually transmitted diseases (STDs). Also, there are questions about your background and behaviour. The information you give us will be used to improve the quality of education for Canadians about AIDS and other STDs.

There are five parts to this questionnaire. You should be able to complete all parts in 25 to 35 minutes. Please read all instructions carefully and answer each question as honestly as possible.

Please do not sign your name to the questionnaire.

## PART A: Background

Please read each question carefully. Answer each question by choosing a number from the **KEY** and writing it in the box(es) beside the question. (For some questions you will write in the space provided.)

1. Are you male or female?

| KEY |
|---|
| 1 = Male |
| 2 = Female |

☐

2. How old are you?

Years ☐☐

Months ☐☐

**FOR EXAMPLE**
If you are 18 years and 6 months old, you would place [1][8] and [0][6] in the double boxes.

3. What program are you in (e.g., business, nursing, science)?

Program _____

4. What year are you in? Enter [1] if you are in 1st year, [2] if 2nd, etc.

Year ☐

5. What was your overall average grade last semester (term)?

☐☐

**FOR EXAMPLE**
If your average was about 65, you would place [6][5] in the double box. Or, if you had a "B" average, you would place a [ ][B] in one of the boxes.

6. How frequently have you gone to church or another religious institution (e.g., synagogue) in the past 12 months? ☐

| KEY |
|---|
| 1 = Usually every week |
| 2 = Now and then |
| 3 = On special occasions |
| 4 = Never |

7. With whom do you live? ☐

| KEY |
|---|
| 1 = My family (at home) |
| 2 = Relative(s) |
| 3 = Friend(s) of the same sex as me |
| 4 = Friend(s) of the opposite sex |
| 5 = A group of friends (mixed sexes) |
| 6 = Roommate (in residence) |
| 7 = Myself (in residence) |
| 8 = Myself (in a room or apartment) |
| 9 = Other (please specify) |
| _____ |

8. Where were your parents born?

Mother ☐☐

Father ☐☐

| KEY |
|---|
| 01 = Canada |
| 02 = Caribbean Country |
| 03 = China or Hong Kong |
| 04 = England, Ireland, Scotland or Wales |
| 05 = France |
| 06 = Germany |
| 07 = Greece |
| 08 = India or Pakistan |
| 09 = Italy |
| 10 = Japan |
| 11 = The Netherlands |
| 12 = Portugal |
| 13 = United States |
| 14 = Vietnam |
| 15 = Other country (please specify) |
| _____ |
| 16 = Don't know |

9. What is the highest level of education completed by your parents?

Mother ☐

Father ☐

**KEY**
1 = Elementary school or less
2 = Some secondary school
3 = Graduated from secondary school
4 = Graduated from community college or CEGEP
5 = Graduated from university
6 = Other (please specify)
_____
7 = Don't know

10. What is the occupation of your parent(s)? (If retired, what were their occupations prior to retirement?)

Mother ☐

Father ☐

**KEY**
1 = Professional (e.g., accountant, doctor, lawyer, teacher, nurse, military officer)
2 = Business (e.g., owner, executive officer, manager)
3 = Factory or farm worker, miner, labourer, waitress, cook, truck driver
4 = Clerical (e.g., sales clerk, secretary)
5 = Sales (e.g., real estate, insurance)
6 = Skilled worker (e.g., carpenter, electrician, plumber, policeman, chef)
7 = Farmer or fisherman
8 = Homemaker (e.g., housewife)
9 = Unemployed
0 = Other (please specify)
_____
_____

**PART B: Sources of Information**

**KEY**

| | | |
|---|---|---|
| 01 = Television | 08 = Mother | 14 = Personal experiences |
| 02 = Radio | 09 = Father | 15 = School (Teachers) |
| 03 = Magazines | 10 = Other family member | 16 = Church (Synagogue, etc) |
| 04 = Newspapers | | 17 = Community Health Clinic |
| 05 = Pamphlets | 11 = Friends | 18 = Telephone "Hotline" |
| 06 = Books/Journals | 12 = Nurse | 19 = Other (please specify) |
| 07 = Videos/Movies | 13 = Doctor | _____ |

Please use the **KEY** above to answer the following two questions.

11. What have been your <u>two main</u> sources of information about the following? (Use the grey boxes)

12. From where or whom would you have <u>preferred</u> to learn about the following? (Use the clear boxes)

| | | 11 | 12 |
|---|---|---|---|
| a) Sex | 1st | ☐☐ | ☐☐ |
| | 2nd | ☐☐ | ☐☐ |
| b) Birth control | 1st | ☐☐ | ☐☐ |
| | 2nd | ☐☐ | ☐☐ |
| c) AIDS | 1st | ☐☐ | ☐☐ |
| | 2nd | ☐☐ | ☐☐ |
| d) Other sexually transmitted diseases -- STDs (e.g., syphilis, gonorrhea, chlamydia, and herpes) | 1st | ☐☐ | ☐☐ |
| | 2nd | ☐☐ | ☐☐ |

13. Over the past two school years, about how many hours of instruction have you had about AIDS (e.g., class time, workshops)? Hours ☐☐

**PART C: Behaviours**

Please read each question carefully. Answer each question by choosing a number from the **KEY** and writing it in the box beside the question. (For some questions you will write in the space provided.)

14. How often do you use the following substances?

| **KEY** |
|---|
| 1 = Never |
| 2 = On special occasions |
| 3 = About once a month |
| 4 = 2-3 times a month |
| 5 = Once a week |
| 6 = 2-3 times a week |
| 7 = Every day |

a) Alcohol (beer, wine, or liquor) ☐

b) Cannabis (hashish or marijuana) ☐

c) Chewing tobacco ☐

d) Cocaine ☐

e) Other non-medical substances (e.g., speed, solvents such as glue or gasoline, or heroin) (please specify) _____ ☐

_____ ☐

15. How much alcohol do you usually drink at one time? ☐

| **KEY** |
|---|
| 1 = None |
| 2 = 1-2 drinks |
| 3 = 3-4 drinks |
| 4 = 5 or more drinks |

16. How many cigarettes do you usually smoke in a day? ☐

| KEY |
|---|
| 1 = None |
| 2 = Less than 10 |
| 3 = 10-20 |
| 4 = More than 20 |

17. How would you describe your sexual orientation? ☐

| KEY |
|---|
| 1 = Heterosexual (opposite sex partner[s]) |
| 2 = Homosexual (same sex partner[s]) |
| 3 = Bisexual (partner[s] of both sexes) |

18. How often have you had the following sexual experiences?

| KEY |
|---|
| 1 = Never |
| 2 = Once |
| 3 = A few times |
| 4 = Often |

a) Hugging ☐

b) Deep (open mouth) kissing ☐

c) Petting above the waist ☐

d) Petting below the waist ☐

e) Sleeping together (without sexual intercourse) ☐

f) Sexual intercourse ☐

g) Oral sex ☐

h) Anal sexual intercourse ☐

i) Other (please specify) _____ ☐

**If you have <u>not</u> had intercourse, please go on to question <u>26</u> on <u>page 11</u>.**

19. With approximately how many persons have you had sexual intercourse? ☐☐

20. How would you generally describe your sexual relationship(s)?

**KEY**
1 = Yes
2 = No

a) Long term (serious) ☐
b) Long term (casual) ☐
c) Short term (serious) ☐
d) Short term (casual) ☐
e) One night stand(s) ☐
f) With a prostitute ☐
g) Other (please specify) _____ ☐

21. For what reason(s) did you <u>first</u> have sexual intercourse

1st Reason ☐
2nd Reason ☐

**KEY**
1 = It was expected by friends
2 = To maintain a relationship
3 = Curiosity
4 = Under the influence of alcohol or other drugs
5 = Got carried away by passion
6 = Loneliness
7 = Love for the person
8 = Physical attraction
9 = Other (please specify)
_____

22. How often have you and/or your sexual partner(s) used the following methods of protection to: A) prevent pregnancy and B) prevent sexually transmitted diseases (e.g., AIDS, chlamydia, gonorrhea, herpes)?

**KEY**
1 = Never
2 = Sometimes
3 = Most of the time
4 = Always

| | (A) To prevent pregnancy | (B) To prevent sexually transmitted diseases |
|---|---|---|
| a) Birth control pill | ☐ | ☐ |
| b) Condom | ☐ | ☐ |
| c) Spermicide (foam or gel) | ☐ | ☐ |
| d) Condom and spermicide | ☐ | ☐ |
| e) Rhythm (Billings) method | ☐ | ☐ |
| f) Withdrawal | ☐ | ☐ |
| g) Diaphragm | ☐ | ☐ |
| h) Cervical cap | ☐ | ☐ |
| i) Morning-after pill | ☐ | ☐ |
| j) Other (please specify) _____ | ☐ | ☐ |

23. If you are having sexual intercourse and are not consistently using protection, please state your reason(s) for not protecting yourself from pregnancy and/or sexually transmitted diseases.

_____

_____

_____

24. Have you had or do you have a sexually transmitted disease (e.g., chlamydia, gonorrhea, herpes)? ☐

**KEY**
1 = Yes
2 = No
3 = Don't know

If yes, what sexually transmitted disease(s) have you had or do you have?

_____

_____

_____

25. Which of the possible outcomes of having sex, in the **KEY** below, worries you the most? (If none of these worries you, place a zero [0] in the "1st Worry" box.)

1st Worry ☐

2nd Worry ☐

**KEY**
1 = Pregnancy
2 = AIDS
3 = Other sexually transmitted diseases (e.g., chlamydia, gonorrhea, herpes)

**If you have had intercourse, please go on to question 27 on page 11.**

26. For what reason(s) have you <u>not</u> had sexual intercourse?

1st Reason ☐

2nd Reason ☐

**KEY**
1 = Not ready yet
2 = Religious beliefs
3 = Fear of pregnancy
4 = Fear of AIDS
5 = Fear of other sexually transmitted diseases (e.g., chlamydia, gonorrhea, herpes)
6 = Parent's disapproval
7 = Friends' disapproval
8 = Want to be a virgin until marriage
9 = Have not met the right person
0 = Other (please specify)
_____

27. If you contracted AIDS or another STD (sexually transmitted disease such as chlamydia, gonorrhea, herpes), where would you go <u>first</u> for help?

AIDS ☐

Other STD ☐

**KEY**
1 = Your family doctor
2 = Another doctor
3 = Community health clinic
4 = Minister, priest, rabbi, etc.
5 = Friend(s)
6 = Parent(s)
7 = Hospital (emergency)
8 = Nowhere
9 = Don't know
0 = Other (please specify)
_____

## PART D: Knowledge of AIDS and Other Sexually Transmitted Diseases

Please indicate whether the following statements are correct by using this **KEY**.

| **KEY** |
|---|
| 1 = Yes |
| 2 = No |
| 3 = Don't Know |

28. The AIDS virus is now called the human immunodeficiency virus (HIV). ☐

29. The AIDS virus weakens the immune system by destroying red blood cells. ☐

30. Sexually transmitted diseases can be caught from toilet seats. ☐

31. All homosexual (gay) men carry the AIDS virus. ☐

32. There are blood tests that show if a person has been infected by the AIDS virus. ☐

33. AIDS is the leading cause of death among Canadians under age 25. ☐

34. Although chlamydia is the most common sexually transmitted disease, it does <u>not</u> lead to serious complications. ☐

35. A person can have the AIDS virus for seven or more years without having symptoms of illness. ☐

36. Vaseline is a good lubricant to use with a condom. ☐

37. The AIDS virus can be spread from a female to her unborn child during pregnancy. ☐

38. A person can get genital herpes from oral sex. ☐

**KEY**
1 = Yes
2 = No
3 = Don't Know

39. Many people who have sexually transmitted diseases will not have symptoms of illness. ☐

40. Taking birth control pills will protect a female from sexually transmitted diseases such as gonorrhea and syphilis. ☐

41. A person can be infected by the AIDS virus for up to six months before its presence can be detected. ☐

42. A person who is having sex with different partners should be checked at least once a year for sexually transmitted diseases. ☐

43. When a person shares drug needles, he or she is at risk of catching the AIDS virus. ☐

44. Condoms used with a spermicidal foam or gel give effective protection from the AIDS virus. ☐

45. The AIDS virus may be spread from a female to a male during sexual intercourse. ☐

46. You can tell if a person has a sexually transmitted disease by his or her looks. ☐

47. If a person has had a sexually transmitted disease, he or she cannot catch it again. ☐

48. The AIDS virus can be spread through hugging. ☐

49. Men and women are equally likely to have serious problems if they catch a sexually transmitted disease. ☐

50. AZT (azidothymidine) is a cure for AIDS. ☐

51. A person can catch some sexually transmitted diseases through genital contact even though the penis does not enter the vagina. ☐

**KEY**
1 = Yes
2 = No
3 = Don't Know

52. Having many sexual partners increases a person's risk of being infected with the AIDS virus. ☐

53. Sexually transmitted diseases can make both females and males unable to have children. ☐

54. Homosexual females and homosexual males are equally at risk of contracting the AIDS virus. ☐

**PART E: Views**

Please read each statement carefully. Place a number from the **KEY** below in the box beside each statement to show whether you agree or disagree with it.

**KEY**
1 = Strongly Agree
2 = Agree
3 = Undecided
4 = Disagree
5 = Strongly Disagree

55. I need to know a lot more about AIDS. ☐
56. I can keep myself from getting AIDS. ☐
57. My parent(s) understand me.. ☐
58. I have confidence in myself. ☐
59. I need to lose weight. ☐
60. Unmarried people should <u>not</u> have sex. ☐
61. If I though I had AIDS, I would be too embarrassed to see my family doctor. ☐
62. I often am sorry for the things I do. ☐
63. Homosexuality is acceptable today. ☐
64. AIDS is <u>not</u> as serious a problem as television, radio, and newspapers suggest. ☐
65. Most people can be trusted to tell the truth about their past sexual experiences. ☐
66. I often have a hard time saying "no". ☐
67. I do <u>not</u> have much in common with people of my age. ☐

**KEY**
1 = Strongly Agree
2 = Agree
3 = Undecided
4 = Disagree
5 = Strongly Disagree

68. I would be embarrassed to buy condoms. ☐
69. I worry about the threat of nuclear war. ☐
70. I feel pressure from my friends to drink alcohol. ☐
71. My parent(s) trust me. ☐
72. I could not be a friend of someone with AIDS. ☐
73. No one cares much about what happens to me. ☐
74. People who have the AIDS virus should be allowed to attend regular school classes. ☐
75. It is alright for two people to have sex before marriage if they are in love. ☐
76. I often get frustrated. ☐
77. I would tell my sexual partner if I thought I had the AIDS virus. ☐
78. I have a lot of friends. ☐
79. Before considering sex, I would talk with my partner about his or her past sexual experiences. ☐
80. I worry that someone of my own sex will make a sexual advance toward me. ☐
81. The government keeps young people from getting needed information about AIDS. ☐
82. Sex without love is not satisfying. ☐

**KEY**
1 = Strongly Agree
2 = Agree
3 = Undecided
4 = Disagree
5 = Strongly Disagree

83. I have trouble making decisions. ☐
84. I often feel left out of things. ☐
85. I need to gain weight. ☐
86. I talk about sex with my close friends. ☐
87. My friends often ask me for help and advice. ☐
88. Homosexuality is wrong. ☐
89. There will always be someone telling me what to do. ☐
90. The future looks good to me. ☐
91. What my parent(s) think of me is important. ☐
92. I am worried about getting AIDS. ☐
93. If I have a problem, I usually keep it to myself. ☐
94. If my friends thought they had a sexually transmitted disease, I would encourage them go to a doctor or nurse. ☐
95. Homosexuals (gays) should be allowed to be teachers. ☐
96. I ask my parent(s) for advice on serious matters. ☐
97. If you carry a condom, people will think you are willing to have sex. ☐
98. People who have the AIDS virus should be allowed to work in a hospital. ☐

**KEY**
1 = Strongly Agree
2 = Agree
3 = Undecided
4 = Disagree
5 = Strongly Disagree

99. I feel pressure from my friends to use marijuana. ☐
100. I expect to have casual sex (one night stands) in the future. ☐
101. I discuss my problems with my friends. ☐
102. I like myself. ☐
103. I often cannot sleep worrying about things. ☐
104. I expect to engage in homosexual activities in the future. ☐
105. I sometimes have thoughts about committing suicide. ☐
106. The fear of getting AIDS is preventing me from having sex. ☐
107. I wish my complexion (facial skin) were better. ☐
108. I trust what television, radio, and newspapers say about AIDS. ☐
109. I believe in getting sexual pleasure where I find it. ☐
110. My friends and I often talk about AIDS. ☐
111. I would change how I look if I could. ☐
112. I often feel lonely. ☐
113. People who have the AIDS virus should be allowed to immigrate to Canada. ☐
114. I trust what the government says about AIDS. ☐
115. I am embarrassed when I am with someone of the opposite sex. ☐

**KEY**
1 = Strongly Agree
2 = Agree
3 = Undecided
4 = Disagree
5 = Strongly Disagree

116. I would talk to my sexual partner about using a condom for our protection. ☐

117. I feel pressure from my friends to be sexually active. ☐

118. People who have the AIDS virus should be allowed to be teachers. ☐

119. I consider myself to be a good athlete. ☐

120. Life is just one worry after another. ☐

121. I would feel comfortable talking with a homosexual (gay) person. ☐

122. The messages I get from television, radio, and newspapers about AIDS confuse me. ☐

123. I often wish I were someone else. ☐

124. People who have the AIDS virus should be quarantined (separated from other people). ☐

125. My chance of catching a sexually transmitted disease is low. ☐

126. People who have AIDS are getting what they deserve. ☐

127. I would raise my children differently from the way I was raised. ☐

128. People who have the AIDS virus should be allowed to serve the public (e.g., waiter, chef, hair stylist) ☐

129. For the rest of my life I intend to have sex with only one partner. ☐

**KEY**
1 = Strongly Agree
2 = Agree
3 = Undecided
4 = Disagree
5 = Strongly Disagree

130. What happens to my health depends mainly on me. ☐

131. I would stop a friend from driving if he or she had had too much alcohol to drink. ☐

132. If I thought I had a sexually transmitted disease, I would be embarrassed to go to a doctor or nurse. ☐

133. I feel uncomfortable when someone of the same sex touches me. ☐

134. I often feel depressed. ☐

135. A condom interferes with sexual pleasure. ☐

136. My parent(s) expect too much of me. ☐

137. People of the opposite sex seem to like me. ☐

138. Some people will be infected by the AIDS virus no matter how they try to avoid it. ☐

139. What my friends think of me is very important. ☐

140. People who have been infected by the AIDS virus should be required to let others know that they have it. ☐

141. I am too shy to make a lot of friends. ☐

142. I am a happy person. ☐

**Thank you for taking part in this study.**